



EG&G ROCKY FLATS, INC.  
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

May 3, 1994

94-RF-05099

Jessie M. Roberson  
Acting Assistant Manager for  
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DOE/RFFO

**SCHEDULE IMPACTS DUE TO RISK ASSESSMENT METHODOLOGY AGREEMENT (03600) –  
SGS-285-94**

As requested in the meeting of May 2, 1994, the schedule impacts for all Table 6 milestones impacted by the Stop Work order are provided. Attached are the extension requirements and schedules per Operable Unit (OU), the rationale for the extensions, and the schedule assumptions used for these new schedules.

The Stop Work order went into effect for OUs 1, 2 and 7 on June 21, 1993; for OU 3 on July 23, 1993; and OUs 4, 5 and 6 on August 12, 1993. The Stop Work order was lifted on April 15, 1994 and EG&G Rocky Flats, Inc. (EG&G) was notified on April 20, 1994.

The Stop Work order has resulted in close deliverable dates for OUs 2, 3, 5 and 6. This could cause a resource problem with the Department of Energy/Rocky Flats Field Office (DOE/RFFO) and the regulatory Agencies as four major reports will be delivered for review at nearly the same time.

Approximately one-third of the new schedules consist of EG&G, DOE and Regulatory Agency review times. The Agency review times are as specified in the current Interagency Agreement (IAG). EG&G proposes the following to reduce review time requirements and potentially improve the resource problem by implementation of one or more of the following:

- Funding the Colorado Department of Health (CDH) for extra staff to review documents
- Consensus comments will be produced by conducting EG&G and DOE workshop reviews or comment consolidation meetings
- Conducting more informational/working meetings with the Agencies in order to obtain buy-in prior to submitting deliverables
- Eliminating or shortening final EG&G/DOE review times
- Presentation of documents to Agencies along with submittals

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- Comment resolution workshops with the Agencies producing a signed consensus for responses

### Proposed Deliverable Dates

The following revised deliverable dates for the Table 6 IAG milestones were developed using the new guidance for Human Health Risk Assessment (HHRA) provided with the above referenced letter. This new guidance involves a significant increase in scope beyond the original HHRA. Therefore, the schedules have increased substantially in addition to the time required for the Stop Work period. Any efficiencies in schedule that can be identified later will be fully utilized.

The Table 6 milestones for OU 1, OU 4 and OU 7 are not included in this letter. OU 1 received an extension previously. OU 4 was streamlined and rebaselined including deletion of the draft and final RCRA [Resource Conservation and Recovery Act] Facilities Investigation/Remedial Investigation (RFI/RI) reports. OU 7 was streamlined and rebaselined with deletion of the draft and final RFI/RI reports. In addition, OU 7 risk assessment activities will not begin until late FY 94 and are not believed to be impacted by the resolution of the HHRA.

	Proposed Draft <u>RFI/RI</u>	IAG Draft <u>RFI/RI</u>	Proposed Final <u>RFI/RI</u>	IAG Final <u>RFI/RI</u>
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OU 5	May 24, 1995	November 30, 1993	December 1, 1995	May 3, 1994
OU 6	May 11, 1995	June 10, 1994	November 16, 1995	November 19, 1994

	Draft <u>CMS/FS</u>	Final <u>CMS/FS</u>	Draft <u>Proposed Plan</u>	Final <u>Proposed Plan</u>
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EG&G recommends that no commitment dates be established for IAG deliverables past the Record of Decision (ROD). There is insufficient information available for any OU at this time to commit to a date for these deliverables. It is expected that commitments for downstream milestones can be made after the Proposed Plan is accepted.



S. G. Stiger  
Associate General Manager  
Environmental Restoration Management  
EG&G Rocky Flats, Inc.

ALP:jlm

Orig. and 1 cc - J. M. Roberson

Attachment:  
As Stated (4)

cc:

E. A. Dillé	-	Aguirre Engineering
M. Guillaume	-	" "
R. H. Birk	-	DOE/RFFO
S. R. Grace	-	" "
F. R. Lockhart	-	" "
M. H. McBride	-	" "
J. L. Pepe	-	" "
T. Reeves	-	" "
R. J. Schassburger	-	" "
M. N. Silverman	-	" "
L. W. Smith	-	" "
B. K. Thatcher	-	" "

CORRES. CONTROL  
OUTGOING LTR NO.

DOE ORDER # 4700.1  
94 RF 05099

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- Presentation of documents to Agencies along with submittals

DIST.	LTR	ENC
AMARAL, M.E.		
BERMAN, H.S.		
BRANCH, D.B.		
CARNIVAL, G.J.		
COPP, R.D.		
DAVIS, J.G.		
FERRERA, D.W.		
HANNI, B.J.		
HARMAN, L.K.		
HEALY, T.J.		
HEDAH, T.		
HILBIG, J.G.		
HUTCHINS, N.M.		
KELL, R.E.		
KIRBY, W.A.		
KUESTER, A.W.		
MAHAFFEEY, J.W.		
MANN, H.P.	X	
MARX, G.E.		
MCDONALD, M.M.		
McKENNA, F.G.		
MONTROSE, J.K.		
MORGAN, R.V.		
POTTER, G.L.		
PIZZUTO, V.M.		
RISING, T.L.		
SANDLIN, N.B.		
SETLOCK, G.H.		
STEWART, D.L.		
STIGER, S. G.	X	
SULLIVAN, M.T.		
SWANSON, E.R.		
WILKINSON, R.B.	X	
WILSON, J.M.		
WYANT, R.D.		
RUSBY	X	
HUTCHINS	X	X
ROBERTS, R.	X	X
PRIMROSE	X	X
O'ROURKE	X	X
PETERMAN	X	
BLAERS	X	
LAURIN, P.J.	X	X
BUDDY, M	X	X
Schabbe, D	X	X
MAST, F	X	X
HOUSTEEN, N	X	X
PATS/T130G	X	
File (2)	2	2
Lake	X	
RPM Action Tracking	X	X
Admin. Record/080	2	2
Correspondence Control	X	X
CLASSIFICATION:		
UCNI		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER  
SIGNATURE

DOCUMENT CLASSIFICATION REVIEW  
WAIVER PER CLASSIFICATION OFFICE

DATE

IN REPLY TO RFP CC NO:  
1302

ACTION ITEM STATUS

☐ OPEN ☒ CLOSED  
☒ PARTIAL

LTR APPROVALS:

ALP: AVE WSB: WSB  
ORIGINATOR & TYPIST INITIALS  
ALP: jlm  
RF-46469 (Rev. 3/94)

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As Stated (4)

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R. J. Schassburger	-	" "
M. N. Silverman	-	" "
L. W. Smith	-	" "
B. K. Thatcher	-	" "

**Attachment A**  
**Schedule Extensions**

**A. THE TIMETABLE AND DEADLINE OR THE SCHEDULE THAT IS SOUGHT TO BE EXTENDED**

- OU 2 Draft and Final RFI/RI Report
- Draft and Final CMS/FS Report
- Draft and Final Proposed Plan Report
- Draft and Final Responsiveness Summary Report
- Draft and Final CAD/ROD Report
- OU 3 Draft and Final RFI/RI Report
- OU 5 Draft and Final RFI/RI Report
- OU 6 Draft and Final RFI/RI Report

**B. THE LENGTH OF THE EXTENSION SOUGHT**

<u>OU Deliverable</u>	<u>Due Date</u>	<u>Proposed Extension</u>
<u>OU 2</u>		
Draft Phase II RFI/RI	May 31, 1995	13 months (from Stop Work order)
Final Phase II RFI/RI	December 6, 1995	20 months (from Stop Work order)
Draft CMS/FS	July 31, 1996	33 months
Final CMS/FS	December 20, 1996	31 months
Draft Proposed Plan	December 20, 1996	31 months
Final Proposed Plan	March 25, 1997	31 months
Draft Responsiveness Summary	August 25, 1997	32 months
Final Responsiveness Summary	November 26, 1997	32 months
Draft CAD/ROD	November 26, 1997	32 months
Final CAD/ROD	March 3, 1998	31 months
<u>OU 3</u>		
Draft Phase I RFI/RI Report	May 1, 1995	15 months
Final Phase I RFI/RI Report	February 15, 1996	16 months
<u>OU 5</u>		
Draft Phase I RFI/RI Report	May 24, 1995	18 months
Final Phase I RFI/RI Report	December 1, 1995	19 months
<u>OU 6</u>		
Draft Phase I RFI/RI Report	May 11, 1995	13 months
Final Phase I RFI/RI Report	November 16, 1995	12 months

### C. THE GOOD CAUSE(S) FOR THE EXTENSION

The principal good causes for the extension that apply are listed in the current IAG as:

- A delay caused or which is likely to be caused by the grant of an extension in regard to another timetable and deadline or schedule.
- Any other event or series of events mutually agreed to by the Parties as constituting good cause.

The specific good causes for the schedule extension are listed below.

#### GENERAL SCHEDULE REQUIREMENTS

One month is required for administrative purposes at the end of the Stop Work in order to:

- Notify all parties of the end of the Stop Work
- Understand and standardize implementation of the methodology
- Evaluate impacts of the HHRA methodology
- Generate schedules for reasonable extension requests
- Begin acquisition of additional funding
- Obtain approvals for budgets and contracts scope increases

#### DELAYS CAUSED BY THE GRANT OF AN EXTENSION IN REGARD TO ANOTHER TIMETABLE AND DEADLINE OR SCHEDULE

Duration of the Stop Work Order. The Stop Work Order was mutually agreed to in order to resolve the issues concerning the risk assessment methodology and resulted in an extension of the schedule for the RFI/RI Reports. The duration of the Stop Work order was:

#### STOP WORK

<u>OU</u>	<u>Start</u>	<u>End</u>	<u>Duration</u>
2	June 21, 1993	April 20, 1994	10 months
3	July 23, 1993	April 20, 1994	9 months
5	August 12, 1993	April 20, 1994	8 months
6	August 12, 1993	April 20, 1994	8 months

#### ANY OTHER EVENT OR SERIES OF EVENTS MUTUALLY AGREED TO BY THE PARTIES AS CONSTITUTING GOOD CAUSE

#### Additional/Modified Scope Requirements

For all of the affected OUs, the following scope is now required in addition to the scope considered necessary to complete the original milestones. Detail is provided in the OU 2 schedule requirements section and is not duplicated for the other OUs.

Data aggregation report, presentation and approval	2.5 months
Multiple risk assessments	OU specific durations



significantly decreased while costs for developing the TMs are not significantly affected.

a) Potential Impacts

The schedule duration for these two TMs are not presently on the schedule since they are not on the critical path of the human health risk assessment. However, these are included since these are required for the other OUs.

The exposure scenario TM must be reviewed and approved before pathways are assessed for the HHRA. Failure to obtain approvals would delay the HHRA.

The modeling TM has been approved for OU 2. For the other OUs, the exposure pathways must be delineated and approved before the modeling TM can be developed. The modeling TM must also be reviewed and approved early enough in the process so that bulk flows can be calibrated within the models prior to when contaminants are delineated in the Contaminants of Concern TM.

b) Requirement

The Exposure Scenario TM and the Modeling TM are both required by paragraph VII.D.1.b of the Interagency Agreement (IAG), and review and approval of these TMs by EPA and CDH are required in that paragraph. Therefore the specified schedule is required for the review, comment response and approval process by which EG&G, DOE, EPA and CDH comment on and approve the TMs.

B. Contaminants of Concern TM

A draft final OU 2 Contaminants of Concern (COC) TM was delivered to the agencies for review and approval. This COC TM outlined the chemicals/metals/radionuclides that will be assessed in the human health risk assessment in all applicable media. Before delivery to the agencies, comments from EG&G/DOE were incorporated into the document.

Comments on the COC TM were subsequently received from EPA and CDH in April 1994. EPA did not concur with the way ground water was aggregated at OU 2 (See attached EPA Specific Comments on page 1 of the comments denoted by "Page 2-5, Groundwater").

Groundwater data is a significant portion of the database, and reaggregating the data requires that the COCs be recalculated using the reaggregated data. COCs for the Draft Phase II RFI/RI Report were to be developed using unvalidated data and then revised using validated data for the Final Phase II RFI/RI Report. However, since the OU 2 database is now available with validated data, the decision was made to reaggregate data and calculate COCs using the validated database instead of the original unvalidated database. This will eliminate the need to redo the COCs for the Final Phase II RFI/RI Report using validated data and will ensure consistent COCs between the Draft and Final Phase II RFI/RI Reports.

OU 2 previously received permission to develop COCs based on the OU 1 process. However, other comments concerning the COC TM and discussions are indicating that

this may be a problem in the future. Since the data is being reaggregated using the validated data, and COCs will need to be redeveloped, OU 2 will develop the new COCs using the newly approved COC methodology. This methodology has already been established for use with the remaining OUs. Using the same methodology as other OUs that will be presenting nearly simultaneous reports will eliminate confusion later on.

Therefore, a revised COC TM will be delivered for review and approval as per the schedule. This decision was a result of comments received from the EPA. The decision was not impacted by the release from the Stop Work Order but coincides with the start of other, dependent HHRA tasks.

a) Duration

The schedule duration for this task is 4 months. This duration is due to:

1 week – reaggregating the extensive OU 2 database into the required groundwater and other data sets

3 weeks – Comparing the new data sets against background data to determine elements above background

3 weeks – Develop new COCs

3 weeks – Revise COC TM

7 weeks – Review and approval of TM by RFP and Agencies.

b) Potential Impacts

All OU 2 data is available. For the other OUs, the critical path for the start of the COC TM is the availability of data from RI fieldwork. This TM must be approved prior to the start of other HHRA activities.

c) Requirement

The Contaminants of Concern TM is required by paragraph VII.D.1.a of the IAG. Review and approval of this TM by EPA and CDH is required in that paragraph. Therefore the specified review, comment response and approval process is required for EG&G, DOE, EPA and CDH to approve the TM.

C. Toxicity TM

A toxicity TM will be developed that delineates the toxicity factors to be used for the human health risk assessment. These toxicity factors are comprised of slope factors and reference doses approved for use by EPA.

a) Duration

The schedule duration for this task is three months and coincides with development of the COC TM. The Toxicity TM is developed based on the COCs identified in the COC TM and is written during review of the draft COC TM.

b) Potential Impact

COCs must be established prior to development of the Toxicity TM. The toxicity factors are well known. Any changes in COCs will necessitate a change in this document as well.

c) Requirement

The toxicity TM is required by Section VII.D.1.c of the IAG and review and approval of this TM by EPA and CDH is required in that paragraph. Therefore the specified review, comment and approval process is required by which EG&G, DOE, EPA and CDH comment on and approve the TM.

D. Data Aggregation Letter Report

A Data Aggregation Letter Report (DALR) is required by the new human health risk assessment methodology. This methodology is outlined in the attached letter on "Resumption of All Work on Operable Unit Baseline Risk Assessments." This DALR is necessary to delineate the "source" areas within an OU that will be assessed in the human health risk assessment. This delineation is a new effort that was agreed to by DOE, EPA and CDH.

a) Durations

The scheduled duration for this task is 5 months. This duration is necessary due to the extensive amount of data manipulation required and the review and approval process. The DALR requires the following estimated durations:

Five weeks to:

- Plot all COC data on a map including data below background levels.
- Determine the statistical distribution of each COC in each environmental media. Present data graphically.
- Calculate the 95th percentile upper confidence limit of the arithmetic mean over each exposure area for each COC.

Five weeks to :

- Review data, meet with DOE, EPA and CDH toxicologists and health physicists plus others as required.
- Present plotted data and a grid of exposure areas.
- Obtain approval for grid placement prior to proceeding.

One month to incorporate all comments and revise DALR.

Six weeks to review and obtain approvals

b) Potential Impact

Prior to the start of the DALR, COCs must be developed and approved in the COC TM. The source areas within the OU are based on the COCs defined in the COC TM. Also, contaminant modeling activities cannot start until the source areas within the DALR have been reviewed and approved. This is because the risks from each source area must be evaluated.

c) Requirement

The DALR is not required by the IAG but the new human health risk assessment methodology requires that the DALR be reviewed and approved by EPA and CDH before computer modeling starts. The DALR review and approval must occur before computer modeling starts since the costs for computer modeling exercises are large. It would be cost effective to minimize the number of computer runs required for the human health risk assessment.

E. Computer Modeling

Air, volatilization from subsurface soils, and surface water modeling will be needed for each source area. Therefore, the 10 separate source areas that are estimated to be identified by the DALR will need these types of models developed. Groundwater contaminant transport modeling and volatilization from ground water will be assessed on an OU wide basis.

a) Schedule Duration

The schedule duration for the modeling task is 5 weeks. Any new COCs identified in the COC process and extra modeling required for each exposure area will be accomplished in this time frame. This duration is aggressive because of the extent of modeling required in this time period for varied media and exposure pathways.

b) Potential Impact

Prior to the start of contaminant transport modeling, all COCs, and source areas identified in the DALR need to be approved. The flow portion of all the models needs to be calibrated.

c) Requirement

The computer modeling exercise is a required portion of the human health risk assessment since all exposure pathways need to be evaluated per the exposure scenario TM.

F. Human Health Risk Assessment Development

Human health risk assessments must be developed for the anticipated 10 source areas identified by the DALR within the OU. It is assumed that each of these 10 areas have both surface and subsurface soil contamination. Groundwater will be assessed as one unit for each of these sources. There will be a separate section in the RFI/RI Report for each of these source areas. There is currently no methodology for assessing "Hot Spots" that has been reviewed and approved by DOE, EPA and CDH. Therefore, hot spot assessment has not been included in the human health risk assessment development. A section will be included on integrating the human health risk assessment with the ecological risk assessment. A minimal qualitative and/or quantitative uncertainty analysis will be included in each source area section.

a) Schedule Duration

The schedule duration for this task is approximately 7 months. This duration is required since ten separate source areas need to be evaluated with respect to human health risk. This means that separate reports need to be written for these ten areas,

and for each of these areas, 7 exposure scenarios need to be assessed. At each of these 10 areas, surficial soils, subsurface soils and surface water need to be assessed as well as groundwater contamination.

It was previously estimated and approved that one risk assessment would take approximately five months. The additional 9 risk assessments would result in some time savings and require an estimated additional 2 to 3 months. The total duration consists of the following tasks with estimated durations:

- 3 weeks - Summarize all HHRA TMs
- 4 weeks - Develop text and tables for the ten source areas and groundwater plumes
- 4 weeks - Develop exposure point concentration tables for all COCs and the ten exposure areas
- 3 weeks - Develop exposure point concentration text as above
- 3 weeks - Develop risk calculation spread sheets
- 4 weeks - Perform risk calculations for ten exposure areas with multiple receptors risk assessments
- 4 weeks - Develop text for risk characterizations
- 3 weeks - Develop radiation dose calculations, 10 onsite areas, multiple pathways
- 3 weeks - Perform special case COC risk evaluations
- 4 weeks - Perform uncertainty evaluations
- 2 weeks - Develop HHRA summary and conclusion
- 2 weeks - Perform external peer review and comment response

b) Potential Impacts

Critical path for starting the human health risk assessment is the end of modeling for all exposure pathways requiring modeling. For exposure pathways not requiring modeling, the start of the human health risk assessment is contingent on the review and approval of the DALR and the exposure scenario TM.

c) Requirement

The human health risk assessment is required by paragraph VIII of the IAG. Review and approval of the human health risk assessment is required by Paragraph VII.C of the IAG as part of the RFI/RI Report.

G Incorporation of HHRA into RFI/RI Report

The HHRA must be incorporated into the existing Phase II RFI/RI preliminary draft. This will be a major document that will require a thorough review to identify and eliminate inadvertent problems.

a) Duration

- Three weeks - incorporation of data into report and reproduction
- One month - RFP joint review
- One month - incorporation of comments

### **OU 3 SCHEDULE REQUIREMENTS**

The draft Phase I RFI/RI Report was anticipated to be submitted on February 14, 1994. The Stop Work order resulted in a 9 month delay. The remaining 6 month delay is due to the general requirements and the following new scope or revised scope requirements.

- Generate and hold Agency discussions of the data aggregation grids and areas.
- Work necessary to complete the four additional risk assessments plus the one risk assessment planned (one for each of the five planned source areas).
- Additional reviews needed, and non-concurrent DOE and EG&G reviews.

### **OU 5 SCHEDULE REQUIREMENTS**

The draft Phase I RFI/RI Report was anticipated to be submitted on November 30, 1993. The Stop Work order resulted in a 8 month delay. The remaining 10 month delay is due to the general requirements and the following new scope or revised scope requirements.

- Generation and Agency discussion of the data aggregation grids and areas. Submittal and review of the position paper for data aggregation.
- Work necessary to complete the 14 additional risk assessments plus the one risk assessment planned (one for each of the 15 planned source areas).
- Additional field work will be performed as part of the Phase II field investigations. This data will be submitted initially in the Final Report and finally submitted as an addendum or appendix to the final report.
- An additional schedule extension request was previously submitted and is attached as Attachment C. Enclosures 1 through 4 for the extension request are not included but copies have been previously submitted with the extension request.

### **OU 6 SCHEDULE REQUIREMENTS**

The draft Phase I RFI/RI Report was anticipated to be submitted on June 10, 1994. The Stop Work order resulted in a 8 month delay. The remaining 5 month delay is due to the general requirements and the following new scope or revised scope requirements.

- Generation and Agency discussion of the data aggregation grids and areas. Submittal and review of the position paper for data aggregation.
- Work necessary to complete the 14 additional risk assessments plus the one risk assessment planned (one for each of the 15 planned source areas).

### **D. ANY RELATED TIMETABLE AND DEADLINE OR SCHEDULE THAT WOULD BE AFFECTED IF THE EXTENSION WERE GRANTED**

All downstream milestones for OUs 2, 3, 5, and 6.

OU 2  
EPA COMMENTS RECEIVED ON THE  
COC T/M



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500  
DENVER, COLORADO 80202-2466

APR 6 1994

Ref: 8HWM-FF

Mr. Richard Schassburger  
U.S. Department of Energy  
Rocky Flats Office  
P.O. Box 928  
Golden, CO 80402-0928

Post-It™ brand fax transmittal memo 7671		# of pages > 11
To	Rick Roberts	
From	Eric Dille	
Co.	Co.	
Dept.	Phone #	
Fax #	Fax #	

RE: Operable Unit 2  
Technical Memorandum 9

Dear Mr. Schassburger:

Enclosed please find EPA's review comments pertaining to the referenced document. The comments indicate a number of deficiencies including inconsistencies between data summary tables and the text, incorrect application of an established selection process, inappropriate use of professional judgement criteria, and disagreement between EPA and the Department of Energy (DOE) on the basic assumption of whether groundwater can sustain adequate yield for domestic use.

The enclosed comments must be adequately addressed and the document must be revised and resubmitted for approval prior to submittal of the baseline risk assessment for Operable Unit 2. Please contact us if you require clarification of any of the enclosed comments and to discuss our expectations for the revised document. Our points of contact for Operable Unit 2 are Bill Fraser at (303) 294-1081, and Bonnie Lavelle at (303) 294-1067.

Sincerely,

Martin Hestmark, Manager  
Rocky Flats Projectcc: Joe Schieffelin, CDH  
Scott Grace, DOE  
Pete Laurin, EG&G  
Rick Roberts, EG&G

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## TECHNICAL MEMORANDUM NUMBER 9 OPERABLE UNIT 2

### GENERAL COMMENTS:

The most significant problem with this technical memorandum is the consideration of whether contaminants identified by statistical tests are related to "source areas" or known wastes as a means of eliminating them from further consideration.

The purpose of the selection of contaminants of concern (COC) is to reduce the number of contaminants carried through the risk assessment chiefly by focusing on the contaminants which present the dominant risks (Risk Assessment Guidance for Superfund, Vol. 1, Part A, (RAGS) page 5-20). All three parties have agreed upon criteria to be used to identify these risk drivers. EPA interprets the RAGS guidance to mean that if contaminants are shown to be within the areas of possible exposure, the ones presenting the dominant risks must be quantitatively assessed in the risk assessment. The use of "waste related" and "source related" criteria is inappropriate, particularly at this time when source areas have not been delineated. The consideration of risks on an operable unit basis also considerably weakens the justification for using "source-related" criteria. For example, significant contamination may be present in an operable unit as a result of a "source" in an adjacent operable unit. In addition, RAGS suggests the use of historical knowledge (i.e., waste-related) as a means of including contaminants even though other objective criteria provide a basis for elimination. DOE has applied this criteria in exactly the opposite manner. This must be corrected.

EPA has agreed to the use of spatial distribution, temporal distribution, and pattern recognition concepts as a means of interpreting statistical tests. The COC selection process we agreed to is illustrated in the flowchart attached to these comments. We abide by the agreements made in developing this flowchart. The following specific comments direct DOE to what we consider to be inappropriate use of subjective criteria as well as other issues which require resolution.

### SPECIFIC COMMENTS:

#### Chapter 2, Chemicals of Concern Selection Process:

Page 2-5, Groundwater. This technical memorandum divides the UHSU into two distinct units: the No. 1 sandstone, and the remainder of the UHSU. The technical memorandum asserts only the No. 1 sandstone is a drinking water source. Therefore, analytical results from the No. 1 sandstone and the UHSU are treated differently. The No. 1 sandstone analytical results were used to select COCs for the on-site residential groundwater ingestion scenario. Analytical results from the remainder of the UHSU were used only to evaluate contaminant migration through groundwater to surface water in Woman Creek and Walnut Creek. This separate data manipulation is incorrect for the following reasons:

The alluvium of the UHSU can be pumped and can be considered a potential drinking water source. More importantly, all units of the UHSU are hydrologically connected. Therefore, it is impossible to segregate the water bearing zones of the UHSU. The determination of groundwater COCs should be completely reevaluated and the relevant sections rewritten. The analytical results from all UHSU wells should be used to identify COCs for on-site residential groundwater ingestion.

Page 2-3, Step 4. This step describes the elimination of chemicals from the COC list based on essential nutrient status. This is acceptable according to Risk Assessment Guidance for Superfund, Part A (RAGS, EPA 1989); however, all chemicals that were considered essential nutrients should be listed in this discussion. The discussion is incomplete as written.

Page 2-3, Step 5 - Detection Frequency. The criteria of evaluating frequency of detects should also apply to inorganics, not just organics.

Page 2-3, Step 6 - Concentration/Toxicity Screen. An intake value should be calculated for those contaminants without toxicity values in order to assess the relative contribution to operable unit risks in a semi-quantitative manner. The maximum detected value should be used for the intake calculation in order to avoid the effort of aggregating data. It will be sufficient to include this information in an appendix to the baseline risk assessment.

Page 2-6, Section 2.1.2. This section describes data review and editing, and discusses the handling of validated and nonvalidated data. The text states, "Some analytical results received from Rocky Flats Environmental Data System (RFEDS) had not been validated." The percentage of validated data is not clear. This information should be included in the discussion, because nonvalidated data can add uncertainty to the risk assessment. Additionally, as described on page 2-8 in the fourth bulleted paragraph, professional judgment was used to evaluate nonvalidated data with re-analysis or re-extraction results. This also adds uncertainty to the derivation of the exposure point concentration. Therefore, the approximate percentage of nonvalidated samples that underwent re-analysis or re-extraction should be reported.

Page 2-8, Section 2.1.3. This section, which describes the use of B-qualified results for organic chemicals, does not conform to EPA guidance as presented in RAGS (EPA 1989). The text states, "nonvalidated B-qualified data results were not included in the working database for selection of chemicals of concern." This statement does not agree with EPA guidance, which recommends that B-qualified data be retained in the risk assessment. Elimination of these data could cause underestimation of exposure point concentrations and frequency of detection. The text states that approximately 1 percent of the total number of samples were excluded. However, the percentage of data excluded for acetone, methylene chloride, phthalates, N-nitrosodiphenylamine, and "other volatile organics in groundwater samples": should be reported. It is important to know how many samples for these chemicals were excluded from consideration in the COC selection process.

The text further explains the decision to eliminate these chemicals by stating that "In the validated data set, most of the B-qualified results for common laboratory contaminants were changed to U-qualified results (nondetect) during validation. Therefore, it is probable that most of the other B-qualified results for these compounds would also be qualified as nondetect." The text does not indicate the percentage of B-qualified results that were changed to U-qualified results. This information is vital to the uncertainty discussion of the baseline human health risk assessment if nonvalidated data are retained in the working dataset as recommended by EPA guidance (EPA 1989).

Finally, N-nitrosodiphenylamine is not a common laboratory contaminant. According to the text, 5 percent or approximately 20 samples of the nonvalidated B-qualified results were for N-nitrosodiphenylamine in subsurface soil. Because N-nitrosodiphenylamine is not a common laboratory contaminant, it is unusual that so many samples would be B-qualified. This chemical should be retained as a potential COC.

Table 2-5. The following errors were found in Table 2-5, which lists toxicity factors for organic compounds and metals:

- 1,2-Dichlorobenzene: The EPA cancer weight of evidence should be class D (EPA 1993b).
- 2-Butanone: The chronic oral reference dose (RfD) could not be verified. The EPA cancer weight of evidence should be D (EPA 1993b).
- Arsenic: The oral slope factor could not be verified.
- Barium: The chronic oral RfD should be  $5E-2$  milligram per kilogram-day (mg/kg-day) (EPA 1993b).
- Beryllium: The chronic oral RfD should be  $5E-3$  mg/kg-day (EPA 1993b). The inhalation slope factor is also incorrect; it is  $8.4 \text{ (mg/kg-day)}^{-1}$  (EPA 1993b).
- Butylbenzylphthalate: EPA classifies this compound as a class C carcinogen (EPA 1993a).
- Di-n-butylphthalate: The chronic oral RfD should be  $1E-1$  mg/kg-day. This compound is a class D carcinogen (EPA 1993a).
- Zinc: The chronic oral RfD is  $3E-1$  mg/kg-day (EPA 1993a). The chronic inhalation RfD could not be verified.
- Di-n-octylphthalate, ethylbenzene, manganese, mercury, pyrene, silver, toluene, and zinc are class D carcinogens.

This table should be reviewed for accuracy and appropriate changes made.

Pages 2-9 through 2-10. Evaluation of blank contamination. It isn't clear whether the data on blank contaminant concentration was not available at the time the report was written or whether it simply doesn't exist. If the former is the case, this data must be obtained and this section of the report must be revised to reflect an objective comparison between the blank and site sample concentrations. If there is no QA/QC data from which to apply the 5X or 10X blank rule, then there is no defensible justification for eliminating these chemicals, especially the B carcinogens.

Table 2-5. Toxicity Factors. The column heading "Chronic Inhalation RfD" must be changed to "Chronic Inhalation RfC" to reflect that Reference Concentration (RfC) is the term EPA uses to describe the non-carcinogenic inhalation toxicity values on the IRIS data base.

### Chapter 3. Groundwater Chemicals of Concern:

#### TOTAL METALS AND RADIONUCLIDES IN GROUNDWATER NO. 1 SANDSTONE:

The following metals were eliminated as a first step even though the ANOVA test showed significance according to Table 3-1 and Table 3-2. They must be evaluated in a concentration toxicity screen:

chromium  
cobalt  
lithium  
selenium  
silver  
vanadium  
zinc

Of those metals and radionuclides which DOE determined to be above background concentrations, the following were eliminated based on dubious professional judgement. EPA doesn't accept the professional judgement arguments used and we require that the following be further evaluated in the concentration/toxicity screen:

Lead, page 3-6. Eliminated partly on the basis of soil concentrations. DOE claims that lead was not shown to be above background in soils. However, this conclusion is only based on the results of a comparison to UTL for lead in soils. The ANOVA test results show that lead is significantly above background in soils, so this is not a legitimate argument. Both statistical tests for groundwater concentrations show significance: 65% of the data exceed the UTL. There is too much uncertainty to eliminate lead at this point.

Strontium, page 3-7. Eliminated on the basis of hits found far from "source areas". This isn't a legitimate criteria. At this point in the investigation, source areas have not been delineated. Strontium was significantly above background concentrations in both statistical tests.

Cesium, page 3-11. DOE's argument for eliminating cesium from further consideration is not well developed. An analysis of temporal variability should demonstrate a trend or lack of trend. DOE's analysis is simply a statement of the frequency of detected expressed as a percentage of sampling events. Provide more information.

#### DISSOLVED METALS AND RADIONUCLIDES IN GROUNDWATER UHSU:

The following metals were eliminated as a first step even though the ANOVA test showed significance according to Table 3-3 and Table 3-4. They must be evaluated in a concentration toxicity screen:

cesium  
copper  
lead  
lithium  
selenium  
silver  
tin  
vanadium

Of those metals and radionuclides which DOE determined to be above background concentrations, the following were eliminated based on dubious professional judgement:

Antimony, page 3-9. Eliminated solely on the basis that it is unrelated to "source areas". This criteria is inappropriate since at this point in the investigation, source areas have not been defined.

Chromium, page 3-9. Exceedance of the UTL may indicate a "hot measurement" which warrants further consideration. The flowchart criteria was exceedance of the UTL by more than 5% of the data. Chromium meets this criteria. In addition, the temporal analysis is not well developed, i.e., there is no indication of the total number of sampling rounds except at the beginning of this section. Too much uncertainty is left to allow elimination of this contaminant now.

Manganese, page 3-10. A relatively high percentage of data exceeds the UTL (23%) which indicates that the contaminant warrants further consideration. The ANOVA also showed significance. Given these two test results, the rationale for eliminating manganese is very weak. Also of note is Table 3-3

which recommends retaining manganese as a COC because "elevated dissolved concentrations in wells near source areas".

Radium 226, page 3-11. The ANOVA statistical tests show significance indicating that radium should be evaluated further in the COC screen.

Uranium 233, 234, page 3-12. The statement that uranium 233, 234 did not exceed background by either statistical test is inconsistent with Table 3-4 which shows that the ANOVA results show a statistical difference between the OU 2 population and the background population.

Uranium 238, page 3-12. Uranium 238 shows an exceedance of background by the ANOVA test. The text and table 3-4 are inconsistent.

#### Additional Chapter 3 Comments:

Page 3-1, Methylene Chloride. Unless there is adequate QA/QC data which supports the elimination of methylene chloride as a laboratory contaminant, it should be retained as a COC and treated as every other contaminant in the COC selection process. Specifically, the maximum concentration should be retained and used in the toxicity screen.

Page 3-1, Third Paragraph. This paragraph states that the alluvium, colluvium, and valley fill cannot provide drinking water. This assumption is based on the statements that the alluvium, colluvium, and valley fill are relatively thin and discontinuous, have low yields, and are only intermittently saturated. These statements are incorrect. The alluvium at OU2 is saturated for most of the year. Monitoring wells completed in the alluvium can be pumped. Therefore, the alluvium is a potential drinking water source. The statements in this paragraph should be modified accordingly.

Page 3-2, Second and Third Paragraph. The third paragraph states that because methylene chloride was usually not detected in subsequent sampling rounds where a previous high concentration was reported, methylene chloride is not considered a groundwater contaminant in these wells. The previous paragraph, however, illustrates four specific examples of this pattern of decreasing concentrations. It also states that this pattern was consistent for most of the wells. Because methylene chloride is carcinogenic, it is important that this compound be evaluated carefully. It is recommended that a table be created illustrating the methylene chloride detections over time in all wells. In this manner, the reader can independently assess the conclusion that methylene chloride is not a groundwater COC except in localized areas. The current discussion does not incorporate enough data to support the conclusion.

Page 3-3, First Paragraph. The text states that only dissolved metals and radionuclides were evaluated in the UHSU. Because the alluvium of the UHSU is capable of supporting a domestic well and all units of the UHSU are hydrologically connected, the determination of

groundwater COCs should be reevaluated. Additionally, total metal concentrations should be used to evaluate groundwater chemicals in all units of the UHSU.

Page 3-3. Second Paragraph. This paragraph states that "it is important that risk assessment and the selection of remedies be focused on actual site contaminants that could threaten public health or the environment rather than on naturally occurring elements or trace contaminants that may be detected infrequently at elevated concentrations but are not characteristic of site contamination." If "trace contaminants" are detected at elevated concentrations and threaten public health, they should be evaluated in the risk assessment. Chemicals should not be eliminated as COCs based on the presumption of source.

Pages 3-11 and 3-12. These pages describe the background comparison for dissolved radionuclides in the UHSU. As discussed in specific comment 9, total radionuclides should have been used to evaluate COCs for this medium. Also, it is unclear whether the background concentrations represent dissolved or total radionuclides. This distinction is particularly important in the evaluation of cesium-137, as the text states, "The background UTL calculated for total [unfiltered] cesium-137 in the No. 1 sandstone is 0.31 picoCuries per liter (pCi/L). The filtered sample results are below this value, suggesting that dissolved-phase cesium-137 is not a groundwater contaminant." This indicates that total cesium-137 in the UHSU may be above background concentrations and should be considered a COC.

Page 3-14. Third Paragraph. Vinyl chloride detections in groundwater are discussed in this paragraph. Only the detections in well 3586 are listed. Vinyl chloride was also detected in wells 3687 and 1587. Well 1587 is located at the 903 Pad, which is considered a source area. Therefore, this paragraph's conclusion that vinyl chloride is not related to source areas is false. The discussion of vinyl chloride in groundwater should be rewritten to include all available data. The current discussion is incomplete and misleading.

Page 3-14. Dibromoethane, vinyl chloride, and cis-1,3-dichloropropene must be evaluated quantitatively in the risk assessment as a hot spot or "special case COC" per the agreed upon flow chart. It is not clear that DOE intends to do this by the statements in this tech memo. For example, "its potential impact on overall risk will be evaluated" is a very vague statement.

Table 3-9. This table presents the concentration-toxicity screen for No. 1 sandstone groundwater chemicals (noncarcinogens). The following chemicals should have been included in the screen: 1,1,2,2-tetrachlorethane; 1,1-dichloropropene; bromodichloromethane; n-butylbenzene; and p-cymene. According to Table 3-5, these chemicals were detected at frequencies greater than 5 percent. Some of these chemicals have toxicity values and should have been included in the evaluation. This evaluation should be reassessed.

Table 3-10. This table presents the concentration-toxicity screen for No. 1. sandstone carcinogens. The maximum value of methylene chloride should be 3 milligrams per liter.

(mg/L), according to Table 3-5. It is listed as 0.04 mg/L in this table. This discrepancy should be resolved and, if necessary, the concentration-toxicity screen should be reevaluated.

Table 3-12. Table 3-12 presents the concentration-toxicity screen for noncarcinogenic chemicals in UHSU groundwater. According to Table 3-6, 1,2-dichloroethene and heptachlor epoxide should be included in the screen. These two compounds do not appear in Table 3-12. Additionally, this table lists incorrect maximum values for methylene chloride and tetrachloroethene. These discrepancies should be corrected and the concentration-toxicity screen analysis reevaluated.

Table 3-13. This table presents the concentration-toxicity screen for carcinogens in UHSU groundwater and includes 1,1,2,2-tetrachloroethene, which was detected at a frequency of 3 percent according to Table 3-8. Therefore, 1,1,2,2-tetrachloroethene should not be included in the concentration-toxicity screen. Additionally, this table presents incorrect concentrations for carbon tetrachloride, chloroform, bromodichloromethane, and methylene chloride, according to Table 3-6. These values should be verified and corrected as necessary.

#### Chapter 4. Subsurface Soil Chemicals of Concern:

##### METALS IN SUBSURFACE SOILS:

The following metals were eliminated as a first step even though the ANOVA test showed significance according to Table 4-1 and Table 4-2. They must be evaluated in a concentration toxicity screen:

barium  
beryllium  
chromium  
cobalt  
copper  
lead  
nickel  
selenium  
silver  
vanadium  
zinc

The following metals were eliminated based on inappropriate or unsupported professional judgement:

Arsenic, page 4-4. DOE's arguments seem to support that arsenic is associated with "sources" of contamination. EPA maintains that sources have not been delineated yet. DOE must strictly adhere to the flowchart. In the case of arsenic, it occurs above background in OU 2 therefore, it should be



considered further in the flowchart, specifically, it should be analyzed in the concentration/toxicity screen.

Mercury, page 4-6. Because of the uncertainty introduced by the 1987 sampling data, EPA suggests that before mercury is eliminated, it be compared to the criteria 1000 x RBC for evaluation as a special case COC.

Thallium, page 4-7. DOE is relying solely on the results of the UTL comparison to eliminate thallium. EPA has consistently maintained that this is not appropriate.

#### RADIONUCLIDES IN SUBSURFACE SOILS:

Page 4-7. Radium 226 was shown to be above background by the ANOVA test and must be considered further in the concentration/toxicity screen. DOE's treatment of uranium 233, 234, uranium 235, and uranium 238 is acceptable providing they are quantitatively addressed in the risk assessment.

#### Additional Chapter 4 Comments:

Table 4-5. This table presents the concentration-toxicity screen of noncarcinogens in subsurface soil. The maximum values of toluene and 2-butanone presented in this table do not agree with those in Table 4-3. This discrepancy should be resolved and the concentration-toxicity evaluation should be reassessed if necessary.

#### Chapter 5, Surface Soil Chemicals of Concern:

Section 5.1, Data Evaluation. The evaluation of benzoic acid, polycyclic aromatic hydrocarbons (PAHs), and bis(2-ethylhexyl)phthalate is inappropriate for two reasons. First, DOE states that the purpose of the evaluation is to determine whether the detection of these substances is "likely to be due to waste releases in OU 2". EPA does not recognize "waste-related" as a legitimate criteria for exclusion of contaminants, only for inclusion. Secondly, all three substances are organic and DOE argues that the levels within OU 2 are less than or equal to background levels. Organic chemicals of potential concern found in background samples should not be considered naturally occurring. They may be present because they are either site contaminants or are of anthropogenic origin. They also could be a result of contamination during sampling. Anthropogenic chemicals should not be eliminated from the risk assessment. Both the Guidance for Data Useability in Risk Assessment (Part A) and RAGS prohibit the elimination of organics based on a comparison to background. Therefore, it will not be allowed in OU 2.

Since there is some doubt at this time as to whether the PAHs and phthalate are anthropogenic or related to Rocky Flats, we suggest that a separate quantitative risk

assessment be done for these contaminants. Benzoic acid must be included in the concentration/toxicity screen, however.

Section 5.2. Background Comparisons for Inorganic Compounds. The following discrepancies between the text in this section and Table 5-2 must be corrected:

1. Beryllium and cadmium are said to exceed background by the ANOVA test, but Table 5-2 lists p values of 0.05 and 0.02 respectively. If these p values are reported correctly, the ANOVA results show that these compounds occur below background levels.
2. Arsenic, barium, and lithium appear to exceed background levels by the ANOVA test results as reported in Table 5-2, yet these results aren't acknowledged in the text. These metals must be considered further in the concentration/toxicity screen unless a spatial or temporal analysis demonstrates they are not above background.
3. Chromium is identified on page 5-5 as a "Special Case" COC yet it is not reported as occurring above background in Table 5-2.

#### Additional Chapter 5 Comments:

Page 5-4, Section 5.2.2. The third paragraph of this section describes the evaluation of uranium. The text seems to indicate that only select values were used to evaluate uranium. All available data should be used, not only data from certain areas of OU2 unless a hot spot analysis is to be performed.

#### Comments on Appendices:

Appendix A, Table A-4. This table presents the 95 percent UTIL comparison of dissolved radionuclides in groundwater in the UHSU. The percent of OU2 data greater than the 95 percent UTIL for radium-226 and uranium-238 does not correspond to those in Table 3-4. This discrepancy should be resolved.

Appendix A, Table A-9. This table presents the ANOVA comparison for total metals in No. 1 sandstone groundwater. The results presented in this table indicate that mercury was not detected in background groundwater samples. If so, it should be retained as a COC. Table 3-1 should be corrected, as well as the COC evaluation tables for No. 1 sandstone groundwater.

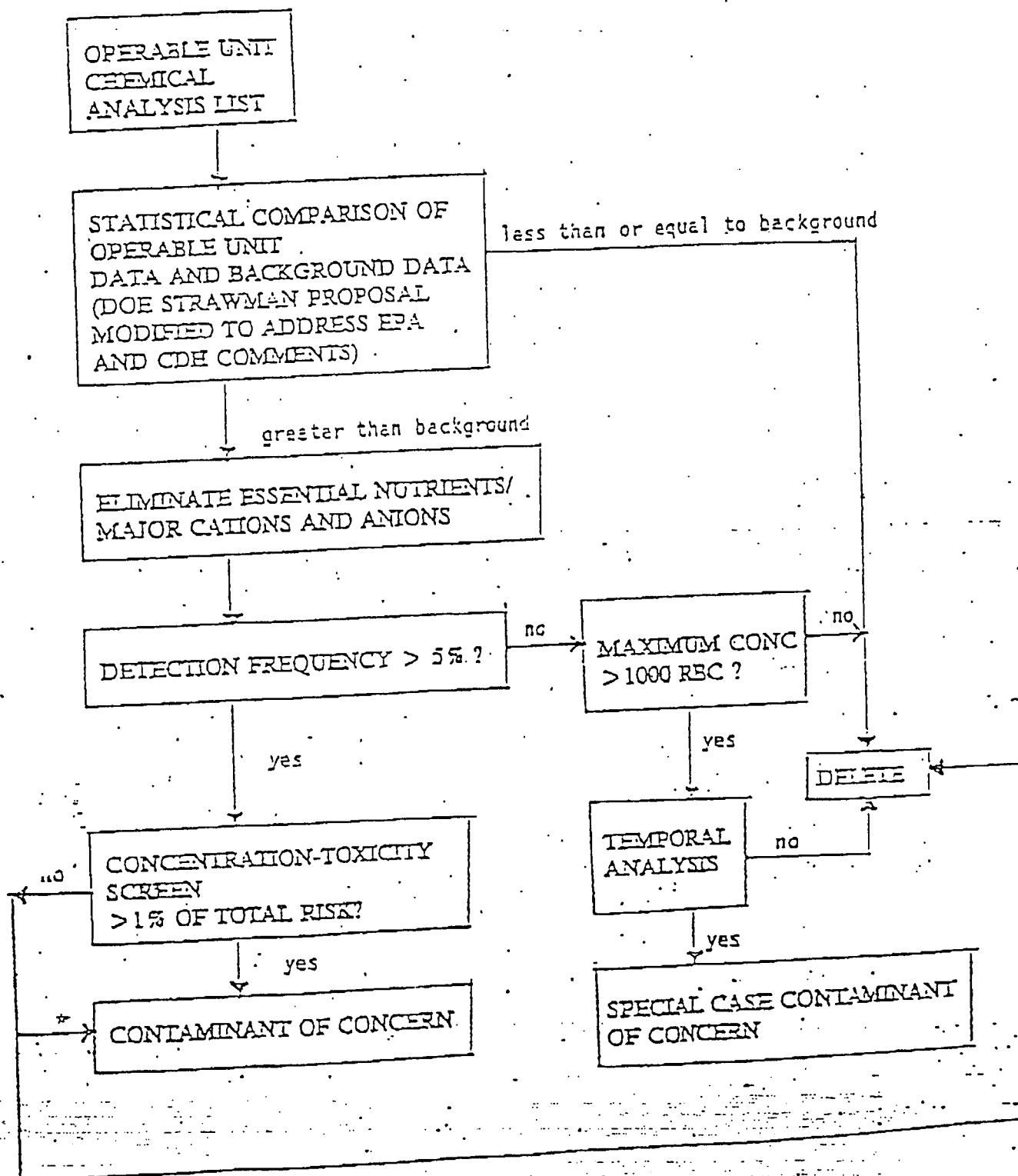
Appendix A, Table A-14. This table presents the ANOVA comparison of radionuclides in subsurface soil. The results do not agree with those in Table 4-2. This discrepancy should be resolved, particularly for the uranium isotopes. According to Table A-14, uranium-235, uranium-238, uranium-233, and uranium-234 should have been retained as COCs.

Appendix B, Tables B-2 through B-4. These tables present exposure parameters used to calculate risk based concentrations (RBCs) used in the evaluation of infrequently detected chemicals. The "fraction ingested from contaminated source" (Table B-2), "fraction contacted from contaminated source" (Table B-3), and deposition factor (Table B-4) used in these equations are not consistent with EPA guidance (EPA 1989). The absorption factor and adherence factor presented in Table B-3 are also not consistent with EPA guidance, as detailed in PRC's evaluation of Rocky Flats OU2 Technical Memorandum 5 (November 9, 1993). Use of these parameters results in RBCs that are higher than would be calculated using conservative parameters. The RBCs should be recalculated using more conservative parameters recommended by EPA.

#### References

- EPA 1989. Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A). Interim Final. EPA/540/1-89/002. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Washington DC.
- EPA 1992. U.S. Environmental Protection Agency Region IV. Interim Region IV Guidance. February 11, 1992.
- EPA 1993a. "Integrated Risk Information System (IRIS) Chemical Files." U.S. Environmental Protection Agency. Office of Health and Environmental Assessment, Office of Research and Development. Washington D.C.
- EPA 1993b. Health Effects Assessment Summary Tables. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response and Office of Research and Development. Washington DC.

## CONTAMINANTS OF CONCERN SELECTION PROCESS



professional judgement

## **Attachment B**

### **RFI/RI Assumptions**

The following schedule assumptions were used by OUs 2, 3, 5 and 6 to develop the new RFI/RI dates. Deviations from these assumptions will result in the need to modify the deliverable dates.

#### **General Assumptions**

All DOE, EPA and CDH review and comment durations are firm. If any of these tasks exceed their scheduled durations, the schedule will slip.

Responses submitted to the agencies in the responsiveness summary for each technical memorandum will be acceptable without revision.

The data from all environmental media will be incorporated into a working data base before the background comparison starts.

The assessment of "Hot Spots" will not be included in the HHRA.

There will be no extensive or protracted discussions or decision making/negotiations regarding inter-agency policy and/or technical differences.

Signed meeting notes will be binding in later discussions.

Previously negotiated agreements will not be changed in successive review cycles. New reviewers will abide by the decisions of their predecessors.

#### **Data Aggregation Assumptions**

The data aggregation deliverables will be submitted in a letter report. This strategy will allow other technical memorandum to be reviewed and approved without being held up by potential data aggregation issues.

Three weeks will be required to review and approve the letter report for data aggregation.

Maps of the grids and data aggregation areas will be provided for the meetings with DOE and the Agencies.

The Data Aggregation letter report will proceed prior to agency review and approval of the COC TM. EG&G, DOE, EPA and CDH review will not change the COCs within the COC TM.

Source areas will only be defined for organics, metals and radionuclides that are identified as contaminants of concern per the COC TM.

The RFI/RI Reports will include sections in the risk assessment chapters to address each source area.

## **Modeling Assumptions**

The modeling technical memorandum will be reviewed and approved by the agencies and environmental transport models will be set up and verified for use before the contaminants are identified in the Contaminants of Concern (COC) Technical Memorandum (TM).

Contaminant transport modeling can proceed after the DOE, EG&G, EPA and CDH meeting to approve the data aggregation methodology. This assumes that agreement has been reached on the data aggregation methodology at this meeting.

Groundwater will be assessed as a single unit within each OU and not broken up by source area.

## **Exposure Scenario Assumptions**

The Exposure Scenario TM will be reviewed and approved by the agencies before starting the data evaluation portion of the Human Health Risk Assessment.

## **COC Assumptions**

New background comparison methodology must be reviewed and approved by Agencies prior to use.

COCs will be selected on an OU wide, media by media basis.

Constituents found to be above background in the COC TM will not be changed by EG&G, DOE, EPA and CDH reviews.

The nature and extent evaluation within the COC TM will be limited to spatial, temporal and fingerprint evaluation of the organics, metals and/or radionuclides that have toxicity factors and show a significant risk in the concentration-toxicity screen. The nature and extent of all other chemicals, metals and/or radionuclides will be evaluated within the RFI/RI Report.

## **OU 2**

A maximum of 10 source areas will be evaluated for the HHRA based on information available now. Changes in the number of source areas evaluated may occur after the data aggregation grids are reviewed and approved. Changes will probably require modification of the schedule.

The COC TM will be revised. Comments for this TM were received from the EPA and CDH in April 1994.

Data will be reaggregated for the groundwater units based on comments received from the Agencies.

Validated data will be aggregated and used to revise the COC TM and for the risk assessment. This is preferred as much of the data will be reaggregated for groundwater as above, and using validated data will allow review and approval of the final COCs prior to issuing the Final Phase II RFI/RI Report.

Air modeling will be done for several of the source areas.

One volatile organic compound migration from groundwater to indoor air will be modeled.

COCs will be determined using the new COC methodology instead of the OU 1 format as the validated data set is being used and COCs are being rerun. This is a result of Agency comments on the COC TM.

### **OU 3**

All Agency and DOE reviews will have a three week duration.

There will be no concurrent DOE and EG&G reviews

There will be concurrent DOE/RFFO and HQ reviews.

Five source areas will be evaluated. The risk assessment calculations based on the supplied data aggregation approach will generally coincide with the four IHSS designations and the Remedy Acreage.

There will be no added groundwater issues to address in the Phase I RFI/RI Report.

The Exposure Scenario TM (TM-2) will not require revision and re-submittal. Comments will be addressed with a responsiveness summary.

The previously negotiated duration between the draft and final RFI/RI Report will be utilized.

OU 3 will do sufficient nature and extent evaluations to identify COCs prior to completion of the COCTM.

Modeling will be done after the COCs are determined.

### **OU 5**

Fifteen source areas will be evaluated.

The Draft Exposure Scenario TM has been submitted and reviewed by the regulators and will not require a major revision. The Data Aggregation letter report will be submitted as an appendix to this TM.

The draft Phase II field data will be incorporated into the Final Phase I RFI/RI Report. The finalized data will be submitted later as another revision of the Final Report, or as an appendix.

### **OU 6**

Fifteen source areas will be evaluated.

The Draft Exposure Scenario TM has been submitted and reviewed by the regulators and will not require a major revision. The Data Aggregation letter report will be submitted as an appendix to this TM.

**Attachment C**  
**Assumptions For Feasibility Study Through ROD Schedules**

For each OU, one subcontract will be procured for the Feasibility Study through the ROD.

The Final RFI/RI Report will be submitted prior to the start of phase 2 CMS/FS activities.

The COC Technical Memorandum (TM) must be completed prior to submittal of the first FS TM.

ARARs will be agreed upon by EPA, CDH and DOE before work is impacted.

If Treatability Studies are required, they will be completed by the Sitewide Program in time for OU use.

A FONSI will be issued for each OU based on the EA.

All modeling requirements will be met in FY 95.

The Final CMS/FS Report will be submitted at the same time as the Draft Proposed Plan.

No significant changes will be necessary between the Draft and Final CMS/FS Reports.

Work on the Draft Proposed Plan will be started when the Draft CMS/FS Report is submitted to the Agencies.

Most of the DOE/RFFO review cycles will be 20 days long. DOE Headquarters reviews, if required, will occur during this time frame.

There will only be a five day final DOE review cycle allowed for the draft Proposed Plan in order to deliver this document with the Final CMS/FS Report.

There will only be one, 10 working day, DOE review cycle between the Draft and Final Proposed Plan.

There will only be one, 10 working day, DOE review cycle between the Draft and Final CAD/ROD.

There will be no major changes between the draft and final Proposed Plans.

It is assumed that there will be no major changes between the draft and final responsiveness summary.

There will be no major changes between the draft and final CAD/ROD.

No commitment to milestones past the ROD will be accepted until the Proposed Plan is completed.



## **OU 2 Specific Assumptions**

Due to the high level of risk associated with this complex OU, the Final Phase II RFI/RI Report must be completed prior to the start of phase 2 CMS/FS activities.

The first FS TM will be started upon submittal of the draft COC TM to the Agencies.

Comments for the COC TM will be received in time to incorporate into the first FS TM.

**Attachment D**  
**OU 5 Extension Request**

Following are the previously submitted OU 5 extension request and the response letter deferring granting of an extension until after the Stop Work for HHRA is resolved.

# STATE OF COLORADO 12314

## COLORADO DEPARTMENT OF HEALTH

*Dedicated to protecting and improving the health and environment of the people of Colorado*

4300 Cherry Creek Dr. S.  
Denver, Colorado 80222-1530  
Phone (303) 692-2000

Laboratory Building  
4210 E. 11th Avenue  
Denver, Colorado 80220-3716  
(303) 691-4700



Roy Romer  
Governor

Patricia A. Nolan, MD, MPH  
Executive Director

October 20, 1993

Mr. Martin Hestmark  
U.S. Environmental Protection Agency  
Region VIII  
999 18th Street, Suite 500, 8WM-C  
Denver, Colorado 80202-2405

RE: Extension Request for Submittal of the Draft and Final Phase I  
RFI/RI Report for OU 5

Dear Mr. Hestmark,

The Colorado Department of Health, Hazardous Materials and Waste Management Division (the Division), has reviewed the above referenced extension request. As with other extension requests received recently, the Division believes that action on this request should be deferred until the work stoppage related to OU 5 has been lifted. At that time, milestones can be finalized considering both adjustments for good cause and work stoppage.

If you have any questions regarding these matters, please call Joe Schieffelin of my staff at 692-3356.

Sincerely,

Gary W. Baughman, Chief  
Facilities Section  
Hazardous Waste Control Program

cc: Rich Schassburger, DOE  
Jen Pepe, DOE  
Ed Mast, EG&G  
Jackie Berardini, CDH-OE

CC: Dotthe Urban Admin. Record

ADMIN RECORD



Department of Energy

ROCKY FLATS OFFICE  
P.O. BOX 928  
GOLDEN, COLORADO 80402-0928

11875

OCT 07 1993

93-DOE-11269

Mr. Martin Hestmark  
U.S. Environmental Protection Agency, Region VIII  
ATTN: Rocky Flats Project Manager, 8HWM-RI  
999 18th Street, Suite 500, 8WM-C  
Denver, Colorado 80202-2405

Mr. Gary Baughman  
Hazardous Waste Facilities Unit Leader  
Colorado Department of Health  
4300 Cherry Creek Drive South  
Denver, Colorado 80222-1530

Gentlemen:


The U.S. Department of Energy Rocky Flats Office (DOE/RFO) is formally requesting a schedule extension for the Interagency Agreement (IAG) Table 6 Milestones for Operable Unit No. 5 (OU5). The IAG requires that the Draft OU5 Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation (RFI/RI) Report be delivered to the Environmental Protection Agency by November 30, 1993. The Final RFI/RI Report is due May 3, 1994. This correspondence forwards justification for schedule delays and supporting enclosures for requesting milestone extensions for the submittal of the OU5 Draft and Final RFI/RI Reports.

Due to the structure of the OU5 Workplan, which utilizes the "Observational Approach" to field sampling, it is not possible to meet either of these milestones. DOE believes the approach is technically sound and very efficient in designing a field sampling plan to target potential source areas. The extensive use of Technical Memoranda (TMs) in the OU5 Workplan allowed for continuous reassessment of the site conditions as data were obtained.

The generation and implementation of the TMs, scope in excess of IAG requirements, procurement delays and a lack of scheduled review time for Human Health Risk Assessment TMs have resulted in schedule delays totaling 365 work days (approximately 17 months). However, DOE has made a determined effort to regain as much schedule as possible. Enclosure 1 shows the original schedule presented in the OU5 RFI/RI Workplan. Enclosure 2 shows a roll-up of the actual project schedule. A more detailed schedule is presented in Enclosure 3. The actual project schedule estimates completion of the Draft and Final RFI/RI Reports on December 20, 1994 and May 30, 1995, respectively. DOE is requesting an extension of 13 months based on the project schedule, although we believe good cause is justified for the delays presented in Enclosure 4.

The structure of the workplan was such that the wells monitoring Individual Hazardous Substance Sites (IHSSs) 115 and 133 (the old landfill and the ash pits) were installed as a final effort based on data gathered throughout the field investigation. As a result, only two quarters of data will be available for incorporation into the Draft RFI/RI Report. It is anticipated that all four quarters of groundwater data will be available for the final report. In addition, the draft report will utilize unvalidated data to avoid delays associated with laboratory turnaround time.

Sincerely,



A. H. Pauole  
Acting Manager

Enclosure

cc w/Enclosure:

A. Rampertaap, EM-453  
J. Ciocco, EM-453  
B. Lavelle, EPA  
J. Schieffelin, CDH  
N. Hutchins, EG&G  
W. Busby, EG&G  
E. Mast, EG&G

# OU 2 SCHEDULE

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					REMEDIAL INVESTIGATION						
1205701480	DRAFT COC TM	0	10CT93A	20CT93A							
12057C1006	RESUME WORK OU WIDE	0		2MAY94							
12057C1010	RE-AGGREGATE DATA	5	2MAY94	6MAY94							
12057C1015	BACKGROUND COMPARRISON	15	9MAY94	27MAY94							
12057C1020	ORGANIC DATA TABLES	5	9MAY94	13MAY94							
12057C1025	SELECT COC'S (OU WIDE)	15	31MAY94	20JUN94							
12057C1030	REVISE COC TECH MEMO	15	21JUN94	12JUL94							
12057C1060	EVALUATE NATURE & EXTENT	40	21JUN94	16AUG94							
12057C1032	COMPLETE DRAFT COC TECH MEMO	0		12JUL94							
12057C1045	REVISE DRAFT EXPOSURE TECH MEMO	50	13JUL94	21SEP94							
12057C1034	EG & G/DOE REVIEW OF COC DRAFT TECH MEMO	15	13JUL94	2AUG94							
12057C1040	EPA/CDH REVIEW OF COC TECH MEMO	15	27JUL94	16AUG94							
12057C1036	RESPOND TO COMMENTS	10	3AUG94	16AUG94							
12057C1038	SUBMIT DRAFT COC TM TO AGENCIES	0		16AUG94							
12057C1065	NATURE & EXTENT TABLES & FIGURES	20	17AUG94	14SEP94							
12057C1042	RESPOND TO COMMENTS	10	17AUG94	30AUG94							
12057C1070	GROUNDWATER MODELING	20	24AUG94	21SEP94							
12057C1080	BASLINE RISK ASSESSMENT BOILER PLATE	15	30AUG94	20SEP94							
12057C1075	SURFACE WATER & AIR MODELING	25	31AUG94	50CT94							
12057C1043	SUBMIT DRAFT FINAL COC TECH MEMO TO AGENCIES	0	31AUG94	30AUG94							
12057C1085	BASLINE RISK ASSESSMENT	111	22SEP94	7MAR95							
12057C1055	EXPOSURE TECH MEMO REVIEW & REVISIONS	50	22SEP94	2DEC94							
12057C1050	EXPOSURE TECH MEMO COMPLETE	0		2DEC94							
12057C1095	ENVIRONMENTAL EVALUATION	30	11JAN95	21FEB95							
12057C1100	INCORPORATE EE INTO RI REPORT	5	22FEB95	28FEB95							
12057C1090	BASLINE RISK ASSESSMENT PEER REVIEW	10	8MAR95	21MAR95							
12057C1105	INCORPORATE BRA INTO RI REPORT	5	22MAR95	28MAR95							
12057C1110	REPRODUCTION	5	29MAR95	4APR95							
12057C1115	DRAFT RI REPORT TO EG&G/DOE	0		4APR95							
12057C1120	EG&G/DOE REVIEW DRAFT	19	5APR95	2MAY95							

Plot Date 3MAY94  
Data Date 31JAN94  
Project Start 10CT91  
Project Finish 16JUN11

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

DU2X

EG&G ROCKY FLATS, INC

DU2 - 903 PAD, MOUND, EAST TRENCHES

RISK ASSESSMENT, RI THRU ROD

Sheet 1 of 2

Date	Revision	Checked	Approved

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ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH								
					FY94	FY95	FY96	FY97	FY98	FY99	FY00	
					REMEDIAL INVESTIGATION							
12057C1125	INCORPORATE COMMENTS	20	3MAY95	31MAY95								
12057C1130	FINAL DRAFT TO AGENCIES/NRDA	0		31MAY95								
12057C1135	AGENCY/NRDA REVIEW	63	1JUN95	29AUG95								
12057C1140	RECIEVE AGENCY/NRDA COMMENTS	0		29AUG95								
12057C1145	INCORPORATE AGENCY COMMENTS	30	30AUG95	11OCT95								
12057C1150	DRAFT FINAL TO EG&G/DOE	0		11OCT95								
12057C1155	EG&G/DOE REVIEW FINAL	20	12OCT95	8NOV95								
12057C1160	INCORPORATE EG&G/DOE REVIEW COMMENTS	18	9NOV95	6DEC95								
12057C1165	FINAL TO EPA	0		6DEC95								
					TREATABILITY/FEASIBILITY STUDY							
12058C1000	FEASIBILITY STUDY START	0	26JUL93A									
12058001	FS PROGRAM MANAGEMENT	761	26JUL93A	18FEB97								
12058C1010	PREPARE SOW	0	27JUL93A	18AUG93A								
12058C1090	EG&G PROVIDES SITEWIDE BENCHMARK TABLES	0	27JUL93A	28JUL93A								
12058C1170	SITEWIDE TREATABILITY STUDIES DATA	0	27JUL93A	28JUL93A								
12058C1020	HOLD PREBID MEETING	0	18AUG93A	18AUG93A								
12058C1030	PERFORM TECH EVAL	0	19AUG93A	7SEP93A								
12058C1040	CONDUCT CONTRACT NEGOTIATIONS	0	8SEP93A	29SEP93A								
12058C1050	AWARD CONTRACT	0		30SEP93A								
12058C3000	NATURE AND EXTENT - OURI	0	1OCT93A	7OCT93A								
12058620	FS WORK PLAN DEVELOPMENT	0	25OCT93A	13DEC93A								
12058C1060	IDENTIFY COLLECT AND DELIVER RI DATA TO SUBCONT	0	8NOV93A	23NOV93A								
12058C1080	CONDUCT RI DATA SUFFICIENCY REVIEW	0	24NOV93A	23DEC93A								
12058630	SUBMIT FS WORK PLAN TO EG&G	0		13DEC93A								
12058C1085	DELIVER EDS REPORT TASK 1	0	28DEC93A	28DEC93A								
12058C1087	DELIVER EDS REPORT, TASK 1	0	29DEC93A	29DEC93A								
12058C1180	DEVELOP COMP LIST OF TECH, TASK 3	0	30DEC93A	12JAN94A								
12058C1070	SUBCONTRACTOR DEVELOPS INTERNAL WORK PLAN	18	31JAN94	23FEB94								
12058C1100	REVIEW AND ASSESS. POTENTIAL ARAR	20	31JAN94	25FEB94								
12059C1190	DETERMINE NEED FOR TREATABILITY STUDY	60	31JAN94	25APR94								
Plot Date 3MAY94 Data Date 31JAN94 Project Start 1OCT91 Project Finish 16JUN11							DU2X EG&G ROCKY FLATS, INC DU2 - 903 PAD, MOUND, EAST TRENCHES RISK ASSESSMENT, RI THRU ROD		Sheet 2 of 7			
					Date Revision Checked Approved							



ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					TREATABILITY/FEASIBILITY STUDY						
12058C1110	EG&G/DOE MEETING TO DISCUSS POTENTIAL ARARS	1	28FEB94	28FEB94							
12058C1120	PREPARE TASK 2 REPORT	5	1MAR94	7MAR94							
12058C1125	TASK 2 REPORT COMPLETE	0	8MAR94	7MAR94							
12058C1140	DEVELOP RA0s	19	28MAR94	22APR94							
12058C1150	DEVELOP GRA	19	28MAR94	22APR94							
12058C1230	CONDUCT INITIAL SCREENING OF TECH	19	28MAR94	22APR94							
12058C1155	DEVELOP PRGs	19	28MAR94	22APR94							
12058C2268	UPDATE OF ARARs DATA	30	4APR94	13MAY94							
12058C1240	DEVELOP TASK 6 REPORT	20	25APR94	20MAY94							
12058C1160	MEETING WITH EPA/CDH	1	25APR94	25APR94							
12058C1245	SUBMIT INTERNAL SCREENING REPORT	0		20MAY94							
12058C1260	DEVELOP ALTERNATIVE LIST (TASK 7)	20	23MAY94	20JUN94							
12058C1270	DELIVER TASK 7 REPORT	1	21JUN94	21JUN94							
12058C1272	SUBMIT ALTERNATIVE LIST	0	22JUN94	21JUN94							
12058C1275	MEETING WITH EPA/CDH	1	22JUN94	22JUN94							
12058C1380	SCREEN ALTERNATIVES TASK 8	40	23JUN94	18AUG94							
12058C1210	DEVELOP DRAFT TM #1	25	27JUL94	30AUG94							
12058C1360	DEVELOP TASK 8 REPORT	10	19AUG94	1SEP94							
12058C1212	EG&G RECEIPT OF TM #1	0		30AUG94							
12058C1220	EG&G REVIEW AND COMMENT TM #1	12	31AUG94	16SEP94							
12058C1365	SUBMIT ALTERNATIVES REPORT	0		1SEP94							
12058C1390	DEVELOP TM#2 TASK 9	25	2SEP94	7OCT94							
12058C1225	INCORPORATE COMMENTS TM#1	5	19SEP94	23SEP94							
12058C1227	SUBMIT DRAFT TM#1 TO DOE	0		23SEP94							
12058C1290	EG&G AND DOE REVIEW & COMMENT DRAFT TM#1	20	26SEP94	21OCT94							
12058C1400	DELIVER TASK 9 DRAFT TM#2	1	10OCT94	10OCT94							
12058C1403	EG&G REVIEW TM#2	8	11OCT94	20OCT94							
12058C1406	INCORPORATE COMMENTS TM#2	5	21OCT94	27OCT94							
12058C3030	REVISE PRGs	5	21OCT94	27OCT94							
12058C1300	INCORPORATE COMMENTS AND PRODUCE FINAL TM#1	10	24OCT94	4NOV94							
Plot Date 3MAY94 Data Date 31JAN94 Project Start 10CT91 Project Finish 16JUN11					DU2X Sheet 3 of 7 EG&G ROCKY FLATS, INC DU2 - 903 PAD, MOUND, EAST TRENCHES RISK ASSESSMENT, RI THRU ROD						
Activity Bar/Early Dates Critical Activity Progress Bar Milestone/Flag Activity					Date	Revision			Checked	Approved	

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					TREATABILITY/FEASIBILITY STUDY						
12058C1408	SUBMIT DRAFT TM#2 TO DOE	0		27OCT94	◇						
12058C3035	SUBMIT REVISED PRGs TO DOE/RFO	0		27OCT94	◇						
12058C1410	DOE REVIEW AND COMMENT ON PRELIMINARY DRAFT TM#2	20	28OCT94	28NOV94	0						
12058C3040	EG&G/DOE REVIEW REVISED PRGs	10	28OCT94	10NOV94	1						
12058C1302	SUBMIT DRAFT TM#1 TO EPA/CDH	0		4NOV94	◇						
12058C1305	EPA\CDH REVIEW OF TM#1	10	7NOV94	18NOV94	1						
12058C3050	PRG RESOLUTION	10	11NOV94	28NOV94	0						
12058C1310	MEETING WITH EPA\CDH	1	21NOV94	21NOV94	1						
12058C1320	COMMENT RESOLUTION ON TM#1	8	22NOV94	5DEC94	1						
12058C3055	PRGs FINALIZED	0		28NOV94	◇						
12058C1420	INCORPORATE DOE COMMENTS	5	29NOV94	5DEC94	1						
12058C1325	SUBMIT FINAL TM#1 TO DOE, EPA/CDH	0		5DEC94	◇						
12058C1330	DOE, EPA/CDH APPROVE FINAL TM#1	10	6DEC94	19DEC94	0						
12058C1440	FINAL DOE REVIEW ON DRAFT TM#2	5	6DEC94	12DEC94	1						
12058C1460	DELIVER TM#2 TO EGG/DOE, EPA/CDH	1	13DEC94	13DEC94	1						
12058C1462	EPA/CDH REVIEW OF TM#2	15	14DEC94	11JAN95	0						
12058C1464	CONDITIONAL APPROVALS MEETING WITH EPA/CDH	1	21FEB95	21FEB95	1						
12058C1466	COMMENT RESOLUTION	5	22FEB95	28FEB95	1						
12058C1468	SUBMIT FINAL TM#2 TO DOE, EPA/CDH	0		28FEB95	◇						
12058C1472	END PHASE 1 FS	0		28FEB95	◇						
12058C2160	SUMMARIZE TM#1, TM#2 & TREATABILITY STUDY	5	7DEC95	13DEC95							
12058C2270	ANALYZE ALTERNITIVES AGAINST 9 CRITERIA (TASK 10)	60	14DEC95	14MAR96							
12058C2290	EA/NEPA REVIEW OF ALTERNATIVES	42	14DEC95	19FEB96							
12058C2272	COMPARATIVE ANALYSIS OF ALTER AGAINST 9 CRITERIA	10	15MAR96	28MAR96							
12058C2274	MEETING WITH EPA/CDH	1	1APR96	1APR96							
12058C2300	PREPARE PRELIMINARY DRAFT CMS/FS - EA REPORT	20	2APR96	29APR96							
12058C2302	PRELIMINARY DRAFT CMS/FS	0		29APR96							
12058C2305	EG&G REVIEW CMS/FS REPORT	5	30APR96	6MAY96							
12058C2310	INCORPORATE COMMENTS	5	7MAY96	13MAY96							
12058C2315	PRELIMINARY DRAFT CMS/FS TO DOE	0		13MAY96							

Plot Date 3MAY94 Data Date 31JAN94 Project Start 10CT91 Project Finish 15JUN11	<div><div></div><div></div><div></div><div></div></div> <div>Activity Bar/Early Dates Critical Activity Progress Bar Milestone/Flag Activity</div>	002X EG&G ROCKY FLATS, INC OU2 - 903 PAD, MOUND, EAST TRENCHES RISK ASSESSMENT, RI THRU ROD	Sheet 4 of 7 <table><tr><th>Date</th><th>Revision</th><th>Checked</th><th>Approved</th></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	Date	Revision	Checked	Approved																
Date	Revision	Checked	Approved																				

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ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH								
					FY94	FY95	FY96	FY97	FY98	FY99	FY00	
					TREATABILITY/FEASIBILITY STUDY							
12058C2320	DOE REVIEW OF PREL. DRAFT CMS/FS-EA REPORT	20	14MAY96	11JUN96								
12058C2330	ADDRESS COMMENTS & PREPARE DRAFT CMS/FS-EA RPT	10	12JUN96	25JUN96								
12058C2340	FINAL DOE REVIEW OF DRAFT CMS/FS REPORT	20	26JUN96	24JUL96								
12058C2350	INCORPORATE COMMENTS	5	25JUL96	31JUL96								
12058C2170	IAG - SUBMIT DRAFT CMS/FS REPORT	0		31JUL96								
12058C2180	EPA/CDH, NEPA REVIEW OF DRAFT CMS/FS-EA REPORT	62	1AUG96	28OCT96								
12058C2190	PREPARE DRAFT FINAL CMS/FS-EA REPORT	19	29OCT96	22NOV96								
12058C2195	SUBMIT FINAL CMS/FS TO DOE	0		22NOV96								
12058C2200	DOE REVIEW DRAFT FINAL CMS/FS-EA REPORT	18	25NOV96	20DEC96								
12058C2210	IAG - SUBMIT FINAL CMS/FS REPORT	0		20DEC96								
12058C2215	DOE TRANSMITTAL OF DRAFT FINAL CMS/FS-EA REPORT	0	23DEC96	20DEC96								
12058C2230	OBTAIN CMS/FS REPORT APPROVALS	10	23DEC96	13JAN97								
12058C2240	PREP FINAL CMS/FS-EA REPORT	21	14JAN97	11FEB97								
12058C2250	RE-SUBMIT FINAL CMS/FS-EA REPORT TO DOE	0		11FEB97								
12058C2260	DOE TRANSMITTAL OF FINAL CMS/RS-EA REPORT	5	12FEB97	18FEB97								
12058C2280	CMS/FS REPORT APPROVED	0		18FEB97								
					REMEDIAL ACTION PLAN							
12060C1570	PREPARE PRELIMINARY DRAFT PROPOSED PLAN	20	1AUG96	28AUG96								
12060C1580	DOCUMENT PROCESSING & TRANSMITTAL	5	29AUG96	5SEP96								
12060C1590	DOE/RFO REVIEW DRAFT PROPOSED PLAN	20	6SEP96	30OCT96								
12060C1600	DOE-HQ REVIEW DRAFT PROPOSED PLAN	20	6SEP96	30OCT96								
12060C1610	INC COMMENTS AND FINALIZE DRAFT PROPOSED PLAN	10	4OCT96	17OCT96								
12060C1620	DOCUMENT PROCESSING & TRANSMITTAL	5	18OCT96	24OCT96								
12060C1625	DOE SECOND REVIEW DRAFT PROPOSED PLAN	5	25OCT96	31OCT96								
12060C1627	INCORPORATE COMMENTS - PROPOSED PLAN	5	1NOV96	7NOV96								
12060C1630	IAG - SUBMIT DRAFT PROPOSED PLAN (PP)	0		20DEC96								
12060C1640	EPA/CDH REVIEW DRAFT PROPOSED PLAN	21	23DEC96	28JAN97								
12060C1650	NRDA TRUSTEES REVIEW DRAFT PROPOSED PLAN	21	23DEC96	28JAN97								
12060C1660	INCORPORATE COMMENTS & FINALIZE PROPOSED PLAN	15	29JAN97	18FEB97								
12060C1670	DOCUMENT PROCESSING & TRANSMITTAL	5	19FEB97	25FEB97								

Plot Date 31JAN94  
Data Date 31JAN94  
Project Start 10CT91  
Project Finish 16JUN11

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

EG&G ROCKY FLATS, INC  
OU2 - 903 PAD, MOUND, EAST TRENCHES  
RISK ASSESSMENT, RI THRU ROD

Sheet 5 of 7

Date	Revision	Checked	Approved

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# NO 3 SCHEDULE

KEW 1 - 11/07/95

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
REMEDIAL INVESTIGATION											
98	Task 6: EE Report	96	14FEB94A	7SEP94							
99	Analysis Phase Approach	0	14FEB94A	28FEB94A							
100	Meeting with EG&G	0	14FEB94A	14FEB94A							
101	Meeting with DOE	0	15FEB94A	15FEB94A							
12	Task 3: Field Investigations	299	21FEB94A	3JUL95							
16	Soil Sampling	0	21FEB94A	23FEB94A							
17	Ship Remaining Samples to Iowa St. Univ.	0	21FEB94A	22FEB94A							
18	Enter Information to Datacap	0	23FEB94A	23FEB94A							
102	Meeting with EPA	0	28FEB94A	28FEB94A							
103	Analysis Phase	42	28FEB94A	21JUN94							
104	Receive Final Abiotic Data	0	28FEB94A	28FEB94A							
0	Task 1: Project Planning	374	1MAR94A	18OCT95							
2	Obtain Additional Background Info	17	1MAR94A	16MAY94							
105	Data Evaluation/Summary	0	1MAR94A	4APR94A							
1	Develop Project Schedule	0	11MAR94A	15APR94A							
19	Wind Tunnel Study	31	14MAR94A	6JUN94							
20	Ship Soil Samples	0	14MAR94A	16MAR94A							
90	RA Calculations	130	15MAR94A	25OCT94							
91	Risk Calc Spreadsheet	2	15MAR94A	25APR94							
21	Enter Information to Datacap	0	17MAR94A	23MAR94A							
27	Task 4: Data Eval./Mgt.	351	1APR94A	15SEP95							
28	Resolution of Data Protocols	0	1APR94A	1APR94A							
29	Data Base Management (Draft R.I.)	39	1APR94A	16JUN94							
32	GIS Applications	351	1APR94A	15SEP95							
34	Task 5: HHRA	130	1APR94A	25OCT94							
35	Statistical Evaluation	26	1APR94A	27MAY94							
38	Resolution of Background	0	1APR94A	1APR94A							
58	TM3- Modeling & Data Agg	114	1APR94A	30OCT94							
59	Data Aggregation Resolution	0	1APR94A	1APR94A							
118	Task 7: RI Investigation	187	1APR94A	24JAN95							

Plot Date 24APR94  
Data Date 23APR94  
Project Start 10CT91  
Project Finish 20AUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

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EG&G ROCKY FLATS, INC  
OU3 - OFFSITE AREAS, ADS 1011  
RISK ASSESSMENT, RI THRU ROD

Sheet 1 of 11

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					REMEDIAL INVESTIGATION						
119	RI Data Evaluations	187	1APR94A	24JAN95							
124	EG&G Soil Kniging	80	1APR94A	15AUG94							
125	Stochastic Modeling (Pu, Am, U)	6	1APR94A	29APR94							
31	Apply Data Base Protocols	0	4APR94A	6APR94A							
60	Data Aggregation Planning	0	4APR94A	15APR94A							
121	Background & Summary Statistics	0	4APR94A	15APR94A							
106	Analysis Phase Write-Up	12	5APR94A	9MAY94							
33	Data Evaluations- PARCC Analysis	96	7APR94A	7SEP94							
36	Data Presentation	0	7APR94A	11APR94A							
39	Conduct Strawman Statistical Tests	0	7APR94A	13APR94A							
37	Data Presentation Meeting	0	12APR94A	12APR94A							
41	TM#4- COC Determination	94	15APR94A	2SEP94							
42	Determine PCOC's	5	15APR94A	28APR94							
61	Data Agg Pres to EPA/CDH	0	18APR94A	18APR94A							
62	EPA/CDH Input	12	19APR94A	9MAY94							
43	Select HHRA COC's	1	29APR94	29APR94							
120	Geochemical Analysis	10	29APR94	12MAY94							
25	Evaluate Groundwater Data	10	2MAY94	13MAY94							
40	Conduct RI Statistical Tests	20	2MAY94	27MAY94							
44	Internal Review Draft	5	2MAY94	6MAY94							
126	Reporting, Reviewing and Maps Constr.	32	2MAY94	15JUN94							
161	Task 8: Project Management	435	2MAY94	31JAN96							
45	Internal Review Process	5	9MAY94	13MAY94							
77	TM#5- Toxicity	82	9MAY94	1SEP94							
78	Internal Review Draft	10	9MAY94	20MAY94							
63	Data Aggregation	10	10MAY94	23MAY94							
107	Senior Review of Analysis	5	10MAY94	16MAY94							
22	Obtain Soil Results	1	11MAY94	11MAY94							
23	Ship Remaining Filter Samples	3	12MAY94	16MAY94							
24	Enter Information to Datacap	5	17MAY94	23MAY94							

Plot Date 29APR94  
Data Date 22APR94  
Project Start 10CT91  
Project Finish 20JUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

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EG&G ROCKY FLATS, INC

DU3 - OFFSITE AREAS, ADS 1011

RISK ASSESSMENT, RI THRU ROD

Sheet 2 of 11

Date	Revision	Checked	Approved

(c) Primavera Systems, Inc.



ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					REMEDIAL INVESTIGATION						
46	Internal Revision	5	17MAY94	23MAY94							
108	Revise and Finalize Analysis	10	17MAY94	31MAY94							
79	Internal Review Process	5	23MAY94	27MAY94							
47	EG&G Review	10	24MAY94	7JUN94							
64	Internal Review Draft	10	24MAY94	7JUN94							
80	Internal Revision	5	31MAY94	6JUN94							
136	Age Dating	10	31MAY94	13JUN94							
137	Receive Age Dating Results	0	31MAY94								
138	Incorporate Age Dating into RI	10	31MAY94	13JUN94							
13	Air Sampling	272	1JUN94	3JUL95							
14	Installation of Air Sampling Equip.	23	1JUN94	1JUL94							
26	Calibrate Meteorological Stations	4	1JUN94	6JUN94							
109	Present Final Results to EPA/DOE/EG&G	15	1JUN94	21JUN94							
81	EG&G Review	10	7JUN94	20JUN94							
48	Revision	10	8JUN94	21JUN94							
65	Internal Review Process	5	8JUN94	14JUN94							
110	Review Analysis Document Based on Input	5	14JUN94	20JUN94							
66	Internal Revision	5	15JUN94	21JUN94							
122	Evaluate Sed, SW, & GW Data	10	16JUN94	29JUN94							
123	Soil Evaluations	10	16JUN94	29JUN94							
127	Stochastic Modeling (metals)	21	16JUN94	15JUL94							
82	Revision	5	21JUN94	27JUN94							
111	Risk Characterization	50	21JUN94	30AUG94							
112	Risk Characterization Write-Up	15	21JUN94	12JUL94							
49	DOE Review	15	22JUN94	13JUL94							
67	EG&G Review	10	22JUN94	6JUL94							
83	DOE Review	15	28JUN94	19JUL94							
131	CSU/HAP Data Incorporation	15	1JUL94	22JUL94							
15	Perform Air Sampling	249	5JUL94	3JUL95							
68	Revision	10	7JUL94	20JUL94							

Plot Date 26APR94  
Data Date 28APR94  
Project Start 10CT91  
Project Finish 20AUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

EG&G ROCKY FLATS, INC  
OU3 - OFFSITE AREAS, ADS 1011  
RISK ASSESSMENT, RI THRU ROD

Sheet 3 of 11

Date	Revision	Checked	Approved

(c) Primavera Systems, Inc.

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					REMEDIAL INVESTIGATION						
113	Senior Review of Risk Characterization	5	13JUL94	19JUL94	1						
50	Revision	10	14JUL94	27JUL94	0						
3	Quarterly Schedule Update	2	15JUL94	18JUL94	1						
128	Reporting, Reviewing and Maps Constr.	10	18JUL94	29JUL94	1						
84	Revision	5	20JUL94	26JUL94	1						
114	Revise and Finalize Risk Characterization	10	20JUL94	2AUG94	0						
69	DOE Review	15	21JUL94	10AUG94	0						
85	TM #5 Delivery Meeting	1	27JUL94	27JUL94	1						
51	TM #4 Delivery Meeting	1	28JUL94	28JUL94	1						
86	EPA/CDH Review	15	28JUL94	17AUG94	0						
52	EPA/CDH Review	15	29JUL94	18AUG94	0						
76	Fugitive Dust Modeling (by EG&G)	26	1AUG94	6SEP94	0						
129	Data Analysis (trenches)	5	1AUG94	5AUG94	1						
115	Present Final Results to EPA/DOE/EG&G	15	3AUG94	23AUG94	0						
130	Reporting (trenches)	6	8AUG94	15AUG94	1						
92	Ident Exposure Distributions	20	10AUG94	7SEP94	0						
70	Revision	10	11AUG94	24AUG94	1						
97	Draft RA Report	52	12AUG94	25OCT94	0						
139	RI Report	10	16AUG94	29AUG94	0						
140	Draft RI Sections	10	16AUG94	29AUG94	0						
87	TM #5 Review Meeting	1	18AUG94	18AUG94	1						
53	TM #4 Review Meeting	1	19AUG94	19AUG94	1						
88	Respond to Comments	10	19AUG94	1SEP94	0						
54	Respond to Comments	10	22AUG94	2SEP94	1						
116	Revise Risk Char. Doc. Based on Input	5	24AUG94	30AUG94	1						
71	TM #3 Delivery Meeting	1	25AUG94	25AUG94	1						
72	EPA/CDH Review	15	26AUG94	16SEP94	0						
89	TM #5 Comments Meeting	1	26AUG94	26AUG94	1						
55	TM #4 Comments Meeting	1	29AUG94	29AUG94	1						
117	Draft EE	5	31AUG94	7SEP94	1						

Plot Date 28PR94  
Data Date 28PR94  
Project Start 10CI91  
Project Finish 20AUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

EG&G ROCKY FLATS, INC  
OU3 - OFFSITE AREAS, ADS 1011  
RISK ASSESSMENT, RI THRU ROD

Sheet 4 of 11

Date	Revision	Checked	Approved

(c) Primavera Systems, Inc.

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	FY94	FY95	FY96	FY97	FY98	FY99	FY00
					REMEDIAL INVESTIGATION						
56	TM#2 Meeting: Exposure Path	1	25EP94	25EP94							
57	TM#2 Comment Responsiveness Summary	10	65EP94	19SEP94							
93	Calc Exposure Point Conc	10	12SEP94	23SEP94							
132	Wind Tunnel	88	13SEP94	24JAN95							
133	Receive Results from RFEDS	58	13SEP94	5DEC94							
73	TM #3 Review Meeting	1	19SEP94	19SEP94							
94	Calc Risk Based Ref Levels	5	19SEP94	23SEP94							
74	Respond to Comments	10	20SEP94	30CT94							
95	Risk and Dose Calcs	10	26SEP94	70CT94							
75	TM #3 Comments Meeting	1	27SEP94	27SEP94							
96	Quant Uncert Analysis Calcs	15	28SEP94	180CT94							
4	Quarterly Schedule Update	2	140CT94	170CT94							
141	Task 5,6,7: Draft RA/RI/EE Report	187	260CT94	28JUL95							
142	Internal Review Draft	25	260CT94	1DEC94							
9	Task 2: Community Relations	247	15NOV94	10NOV95							
10	Presentation of Draft RI	10	15NOV94	30NOV94							
143	Internal Review Process	10	2DEC94	15DEC94							
134	Apply Data Protocols	10	6DEC94	19DEC94							
144	Internal Revision	20	16DEC94	20JAN95							
135	Incorporate Data in RA	20	20DEC94	24JAN95							
5	Quarterly Schedule Update	2	3JAN95	4JAN95							
145	EG&G Review	20	23JAN95	17FEB95							
146	Revision	20	20FEB95	17MAR95							
147	DOE Review	20	20MAR95	17APR95							
6	Quarterly Schedule Update	2	10APR95	11APR95							
148	Revision	10	18APR95	1MAY95							
149	IAG - Submit Draft RFI/RI Rpt to EPA/CDH	0		1MAY95							
150	EPA/CDH Review	62	2MAY95	28JUL95							
30	Data Base Management (Final R.I.)	23	15JUN95	18JUL95							
7	Quarterly Schedule Update	2	13JUL95	14JUL95							

Plot Date 29APR94  
Data Date 22APR94  
Project Start 10CT91  
Project Finish 20JUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

EG&G ROCKY FLATS, INC  
OU3 - OFFSITE AREAS, ADS 1011  
RISK ASSESSMENT, RI THRU ROD

Plot Date 29APR94  
Data Date 22APR94  
Project Start 10CT91  
Project Finish 20JUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

EG&G ROCKY FLATS, INC  
OU3 - OFFSITE AREAS, ADS 1011  
RISK ASSESSMENT, RI THRU ROD

Plot Date 29APR94  
Data Date 22APR94  
Project Start 10CT91  
Project Finish 20JUG98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

EG&G ROCKY FLATS, INC  
OU3 - OFFSITE AREAS, ADS 1011  
RISK ASSESSMENT, RI THRU ROD

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH							
					FY94	FY95	FY96	FY97	FY98	FY99	FY00
					REMEDIAL INVESTIGATION						
151	Task 5,6,7: Final HHRA/EE/RI	145	31JUL95	29FEB96							
152	Incorporate Comments & Finalize HHRA/EE/RI	30	31JUL95	11SEP95							
153	Internal Review Process	10	12SEP95	25SEP95							
154	Internal Revision	15	26SEP95	16OCT95							
11	Presentation of Final RI	20	16OCT95	10NOV95							
8	Quarterly Schedule Update	2	17OCT95	18OCT95							
155	EG&G Review	20	17OCT95	13NOV95							
156	Revision	20	14NOV95	13DEC95							
157	DOE Review	20	14DEC95	18JAN96							
158	Revision	20	19JAN96	15FEB96							
159	IAG - Submit Final RFI/RI Rpt to EPA/CDH	0		15FEB96							
160	Project Close-Out	10	16FEB96	29FEB96							

# NO 5 SCHEDULE

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	1993 1994 1995											
					S	O	N	D	J	F	M	A	M	J	J	A
1220700007	SAMPLE ANALYSIS (UNVALIDATED)	0	10CT93A	7FEB94A												
1220700008	RAD (UNVALIDATED)	0	10CT93A	7FEB94A												
1220700009	NON-RAD (UNVALIDATED)	0	10CT93A	15JAN94A												
1220700010	SAMPLE ANALYSIS VALIDATED (DATABASE MANAGEMENT)	55	17JAN94A	1JUL94												
1220700011	RAD (validated)	55	1MAR94A	1JUL94												
1220700012	NON-RAD (validated)	0	17JAN94A	18MAR94A												
1220700013	EM61 GEOPHYSICAL SURVEY	0	10CT93A	22FEB94A												
1220700014	EM61 - CONTRACT MODIFICATION/TECHNICAL EVALUATIO	0	10CT93A	6DEC93A												
1220700015	AWARD EM61 CONTRACT MODIFICATION	0	15DEC93A	15DEC93A												
1220700016	IMPLEMENT EM61 GEOPHYSICAL SURVEY - FIELD ACTIVI	0	6JAN94A	8FEB94A												
1220700017	EM 61 DATA EVALUATION/REPORTING	0	9FEB94A	22FEB94A												
1220700018	TM15 ADDENDUM TO FIELD SAMPLING PLAN	315	26JAN94A	19JUL95												
1220700019	TM15 DATA MANAGEMENT	0	26JAN94A	22MAR94A												
1220700020	TM15 EXTRACT FROM RFEDS	0	26JAN94A	26JAN94A												
1220700021	TM15 DATABASE CLEANUP	0	26JAN94A	22FEB94A												
1220700022	TM15 BACKGROUND COMPARISONS	0	23FEB94A	1MAR94A												
1220700023	TM15 DATABASE PRESENTATION	0	2MAR94A	8MAR94A												
1220700024	TM15 STATISTICAL TESTS (UTL'S)	0	9MAR94A	15MAR94A												
1220700025	TM15 PROFESSIONAL JUDGEMENT	0	16MAR94A	22MAR94A												
1220700026	PREPARE DRAFT TM 15 ADDENDUM TO FIELD SAMPLING P	0	23MAR94A	15APR94A												
1220700027	DELIVER DRAFT TM15 FSP TO EG&G/DOE FOR FIRST RE	0	15APR94A	15APR94A												
1220700028	EG&G/DOE REVIEW & COMMENT ON DRAFT TM 15	6	18APR94A	22APR94												
1220700029	INCORPORATE EG&G/DOE COMMENTS INTO DRAFT FINAL	10	25APR94	6MAY94												
1220700030	DELIVER DRAFT TM 15 FSP TO EPA/CDH	0	9MAY94	6MAY94												
1220700031	EPA/CDH REVIEW & COMMENTS PERIOD DRAFT TM 15	15	9MAY94	27MAY94												
1220700032	INCORPORATE EPA/CDH COMMENTS INTO FINAL TM 15	10	31MAY94	13JUN94												
1220700033	DELIVER FINAL TM 15 FSP TO EPA/CDH	0	14JUN94	13JUN94												
1220700034	CONTRACT MODIFICATION PROCUREMENT	60	9MAY94	2AUG94												
1220700035	AWARD CONTRACT MODIFICATION	0	3AUG94	2AUG94												
1220700036	IMPLEMENT FSP (TM15)	61	3AUG94	27OCT94												

Activity Classification: SUMMARY

WEEK

Plot Date 3MAY94  
Data Date 15APR94  
Project Start 10CT91  
Project Finish 9APR13



Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

SRSK

Sheet 1 of 5

EG&G ROCKY FLATS, INC  
DU 05 - WOMAN CREEK  
REMEDIAL INVESTIGATION

ADS 1005 - WORK PACKAGE #12207

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	1993												1994												1995											
					S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D								
1220700037	MOBILIZE TO THE FIELD	5	3AUG94	9AUG94																																				
1220700038	DATA REVIEW (SOP TRAINING)	5	3AUG94	9AUG94																																				
1220700039	REVIEW \REVISED HASP	10	3AUG94	16AUG94																																				
1220700040	DEVELOP IWCP OR SOP'S (FY94)	14	3AUG94	22AUG94																																				
1220700041	DEVELOP IWCP OR SOP'S (FY95)	6	23AUG94	30AUG94																																				
1220700042	GEOPHYSICAL SURVEYS	40	31AUG94	26OCT94																																				
1220700043	FIELD SAMPLING	40	23AUG94	18OCT94																																				
1220700044	BORINGS	20	23AUG94	20SEP94																																				
1220700045	SURFACE SOIL SAMPLING	25	23AUG94	27SEP94																																				
1220700046	GROUNDWATER SAMPLING	20	21SEP94	18OCT94																																				
1220700047	SAMPLE MANAGEMENT	47	23AUG94	27OCT94																																				
1220700048	BORINGS PACKAGING SHIPPING	47	23AUG94	27OCT94																																				
1220700049	SURFACE SOIL SAMPLING PACKAGING SHIPPING	30	23AUG94	4OCT94																																				
1220700050	GW SAMPLING AND SHIPPING	25	21SEP94	25OCT94																																				
1220700051	ANALYTICAL	180	26OCT94	19JUL95																																				
1220700052	UNVALIDATED DATA	90	26OCT94	10MAR95																																				
1220700053	RADS	90	26OCT94	10MAR95																																				
1220700054	NON-RADS	45	26OCT94	6JAN95																																				
1220700055	VALIDATED DATA	135	9JAN95	19JUL95																																				
1220700056	RADS	90	13MAR95	19JUL95																																				
1220700057	NON-RADS	45	9JAN95	10MAR95																																				
1220700058	EVALUATE DATA	30	13MAR95	24APR95																																				
1220700059	RESCIND HUMAN HEALTH STOP WORK ORDER	0	2MAY94	29APR94																																				
1220700060	HUMAN HEALTH RISK DEVELOPMENT	160	14MAR94A	5DEC94																																				
1220700061	DATA CLEAN UP	7	11APR94A	29APR94																																				
1220700062	BACKGROUND COMPARISON	20	2MAY94	27MAY94																																				
1220700063	CON TOX SCREENS	5	31MAY94	6JUN94																																				
1220700064	IDENTIFICATION OF POTENTIAL COCS/NATURE AND EXTE	10	7JUN94	20JUN94																																				
1220700065	PREPARE DATA AGGREGATION PAPER	71	7JUN94	15SEP94																																				
1220700066	APPLY DATA AGGREGATION METHODOLOGY	30	7JUN94	19JUL94																																				

Activity Classification: SUPPORT

BASE BOX

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

SRGK

EG&G ROCKY FLATS, INC  
DU 05 - WOMAN CREEK  
REMEDIAL INVESTIGATION

Sheet 2 of 5

AOS 1005 - WORK PACKAGE #12207

Date	Revision	Checked	Approved

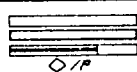
(c) Primavera Systems, Inc.

ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	1993				1994				1995																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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1220700067	FORMULATE POSITION ON DATA AGGREGATION	15	20JUL94	9AUG94																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

Activity Classification: SUMMARY

HMS/DOCK

Plot Date 31NY94  
 Data Date 15APR94  
 Project Start 10CT91  
 Project Finish 9APR93



Activity Bar/Early Dates  
 Critical Activity  
 Progress Bar  
 Milestone/Flag Activity

555K

EG&G ROCKY FLATS, INC  
 DU 05 - WOMAN CREEK  
 REMEDIAL INVESTIGATION

Sheet 3 of 5

ADS 1005 - WORK PACKAGE #12207

Date	Revision	Checked	Approved



ACTIVITY ID	ACTIVITY DESCRIPTION	REM DUR	EARLY START	EARLY FINISH	1993												1994												1995											
					S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D								
1220700097	EPA/CDH REVIEW DRAFT FINAL TOXICITY TM	15	20JUL94	9AUG94																																				
1220700098	PREPARE FINAL TOXICITY TM	10	10AUG94	23AUG94																																				
1220700099	SUBMIT FINAL TOXICITY TM	0	24AUG94	23AUG94																																				
1220700100	MODELING TM	35	21JUN94	9AUG94																																				
1220700101	REVISE DRAFT FINAL MODELING TM	10	21JUN94	5JUL94																																				
1220700102	SUBMIT DRAFT FINAL MODELING TM TO EPA/CDH	0	6JUL94	5JUL94																																				
1220700103	EPA/CDH REVIEW DRAFT FINAL MODELING TM	15	6JUL94	26JUL94																																				
1220700104	PREPARE FINAL MODELING TM	10	27JUL94	9AUG94																																				
1220700105	SUBMIT FINAL MODELING TM	0	10AUG94	9AUG94																																				
1220700106	MODELING	135	14MAR94A	27OCT94																																				
1220700107	ENVIRONMENTAL EVALUATION	132	8FEB94A	20OCT94																																				
1220700108	DATA EVALUATION	39	8FEB94A	9JUN94																																				
1220700109	COC SELECTION	5	1SEP94	8SEP94																																				
1220700110	EE\HHRA INTERGRATION	15	9SEP94	29SEP94																																				
1220700111	REPORT PREPARATION	15	30SEP94	20OCT94																																				
1220700112	RFI/RI REPORT	385	19MAY94	1DEC95																																				
1220700113	PREPARE DRAFT RFI/RI REPORT	203	19MAY94	14MAR95																																				
1220700114	CHAPTER 1, INTRODUCTION	10	1FEB95	14FEB95																																				
1220700115	CHAPTER 2, FIELD OPERATIONS AND INVESTIGATION SU	60	19MAY94	12AUG94																																				
1220700116	CHAPTER 3, PHYSICAL CHARACTERISTICS	30	19MAY94	30JUN94																																				
1220700117	CHAPTER 4, NATURE AND EXTENT SECTION	30	21JUN94	2AUG94																																				
1220700118	CHAPTER 5, CONTAMINANT FATE AND TRANSPORT	30	28OCT94	12DEC94																																				
1220700119	CHAPTER 6, INCORPORATION OF HHRA INTO RFI REPORT	60	28OCT94	31JAN95																																				
1220700120	CHAPTER 7, INCORPORATION OF EE INTO RFI REPORT	15	30SEP94	20OCT94																																				
1220700121	CHAPTER 8, PRELIMINARY EVALUATION OF REMEDIAL AL	30	13DEC94	31JAN95																																				
1220700122	CHAPTER 9, PRELIMINARY IDENTIFICATION OF DATA GA	15	11JAN95	31JAN95																																				
1220700123	CHAPTER 10, SUMMARY AND CONCLUSIONS	30	1FEB95	14MAR95																																				
1220700124	DELIVER DRAFT 1ST DRAFT RFI/RI REPORT TO EG&G/DO	0	15MAR95	14MAR95																																				
1220700125	EG&G/DOE REVIEW AND COMMENTS ON DRAFT 1ST DRAFT	20	15MAR95	11APR95																																				
1220700125	PREPARE FINAL 1ST DRAFT RFI/RI REPORT	30	12APR95	24MAY95																																				

Activity Classification: SUMMARY

000 HANDED

Plot Date 31AY94  
 Data Date 15APR94  
 Project Start 10CT91  
 Project Finish 99PR13



Activity Bar/Early Dates  
 Critical Activity  
 Progress Bar  
 Milestone/Flag Activity

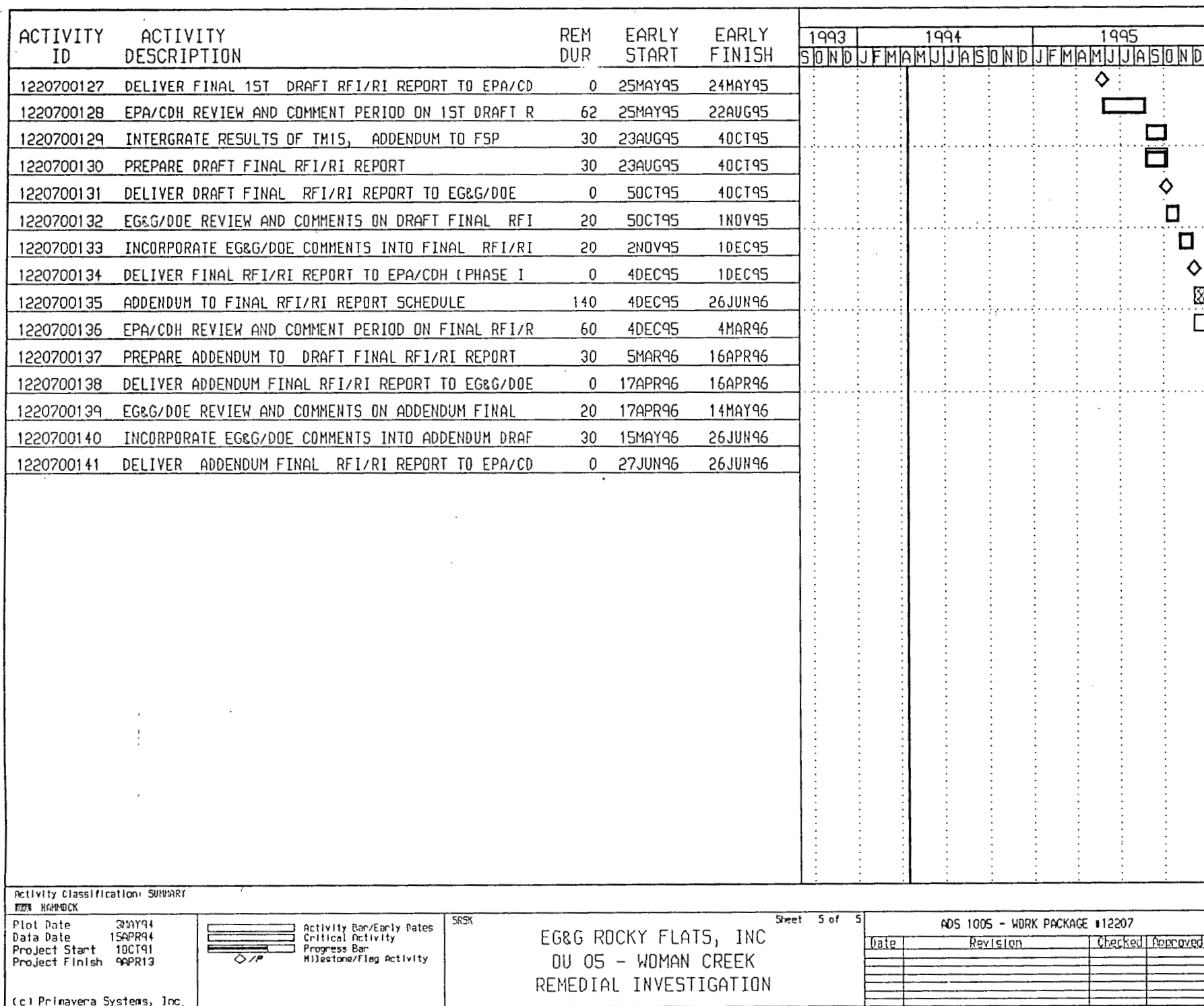
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Sheet 4 of 5

EG&G ROCKY FLATS, INC  
 DU 05 - WOMAN CREEK  
 REMEDIAL INVESTIGATION

ADS 1005 - WORK PACKAGE #12207

Date	Revision	Checked	Approved



# OU 6 SCHEDULE

ACTIVITY ID	ACTIVITY DESCRIPTION	ORIG DUR	EARLY START	EARLY FINISH	1993	1994	1995
					S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
1225500007	Sample Analysis Unvalidated Results Back	68	10CT93A	14JAN94A			
1225500008	Rad	68	10CT93A	14JAN94A			
1225500009	Non-Rad	58	10CT93A	23DEC93A			
1225500010	Sample Analysis Validated Results Back	40	3JAN94A	25FEB94A			
1225500011	Rad	30	17JAN94A	25FEB94A			
1225500012	Non-Rad	10	3JAN94A	14JAN94A			
1225500013	Environmental Evaluation	202	24JAN94A	7NOV94			
1225500014	PCB Project	202	24JAN94A	7NOV94			
1225500015	Write Addendum to Environmental Evaluation Sampl	15	24JAN94A	11FEB94A			
1225500016	EG&G/DOE Review and Comment on Addendum	10	14FEB94A	25FEB94A			
1225500017	Incorporate EG&G/DOE Comments into Addendum	5	28FEB94A	4MAR94A			
1225500018	Modification of EE Contract	35	28FEB94A	18APR94A			
1225500019	Write SOW/Cost Estimate/SSJ	10	28FEB94A	11MAR94A			
1225500020	Contractor Proposal	10	14MAR94A	25MAR94A			
1225500021	Technical Evaluation	15	28MAR94A	18APR94A			
1225500022	Award Contract Modification	0	18APR94A	18APR94A			
1225500023	Modify Standard Operating Procedures	20	7MAR94A	4APR94A			
1225500024	Modify and Internal review of HASP	15	7MAR94A	25MAR94A			
1225500025	Conduct Field Sampling	20	19APR94	16MAY94			
1225500026	Sample Management	22	19APR94	18MAY94			
1225500027	Sample Analysis Unvalidated Results Back	60	19MAY94	12AUG94			
1225500028	PCB's/TOC	30	19MAY94	30JUN94			
1225500029	Rad	60	19MAY94	12AUG94			
1225500030	Sample Analysis Validated Results Back	90	1JUL94	7NOV94			
1225500031	PCB's/TOC	30	1JUL94	12AUG94			
1225500032	RAD	60	15AUG94	7NOV94			
1225500033	DATA EVALUATION	90	19APR94	24AUG94			
1225500034	CDC SELECTION	5	25AUG94	31AUG94			
1225500035	EE\HHRA INTERGRATION	15	1SEP94	22SEP94			
1225500036	REPORT PREPARATION	15	23SEP94	13OCT94			

Activity Classification: SUMMARY

WBS Hierarchy

Plot Date 3MAY94  
Data Date 19APR94  
Project Start 10CT91  
Project Finish 20AUG13



Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

GRK

Sheet 1 of 4

EG&G ROCKY FLATS, INC  
OU 06 - WALNUT CREEK  
REMEDIAL INVESTIGATION

AOS 1014 - WORK PACKAGE #12255

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	ORIG DUR	EARLY START	EARLY FINISH	1993												1994					1995																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Activity Classification: SUMMARY

BARBDOCK

Plot Date 3MAY94  
Data Date 19APR94  
Project Start 10CT91  
Project Finish 20AUG13



Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

GRSK

EG&G ROCKY FLATS, INC  
OU 06 - WALNUT CREEK  
REMEDIAL INVESTIGATION

Sheet 2 of 4

ADS 1014 - WORK PACKAGE #12255

Date	Revision	Checked	Approved

ACTIVITY ID	ACTIVITY DESCRIPTION	ORIG DUR	EARLY START	EARLY FINISH	1993												1994												1995																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Activity Classification: SUMMARY

EG&G ROCKY

Plot Date 3MAY94  
Data Date 19APR94  
Project Start 10CT91  
Project Finish 20AUG13



Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

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EG&G ROCKY FLATS, INC  
OU 06 - WALNUT CREEK  
REMEDIAL INVESTIGATION

Sheet 3 of 4

AOS 1014 - WORK PACKAGE #12255

Date	Revision	Checked	Approved

